Service Manual

Colour Video Cameras

MODELS **WV-3000E/WV-3000N**

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Vol. 2 Adjustment Procedures

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Panasonic/National

ORDER NO. AVD-8103-544

Service Manual

Vol. 1

Circuit Description

Colour Video Cameras

WV-3000E/WV-3000N

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Panasonic / National

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CIRCUIT DESCRIPTION OF CAMERA HEAD

1. Principle of Single Carrier Frequency Multiplexing System using a Single Tube.

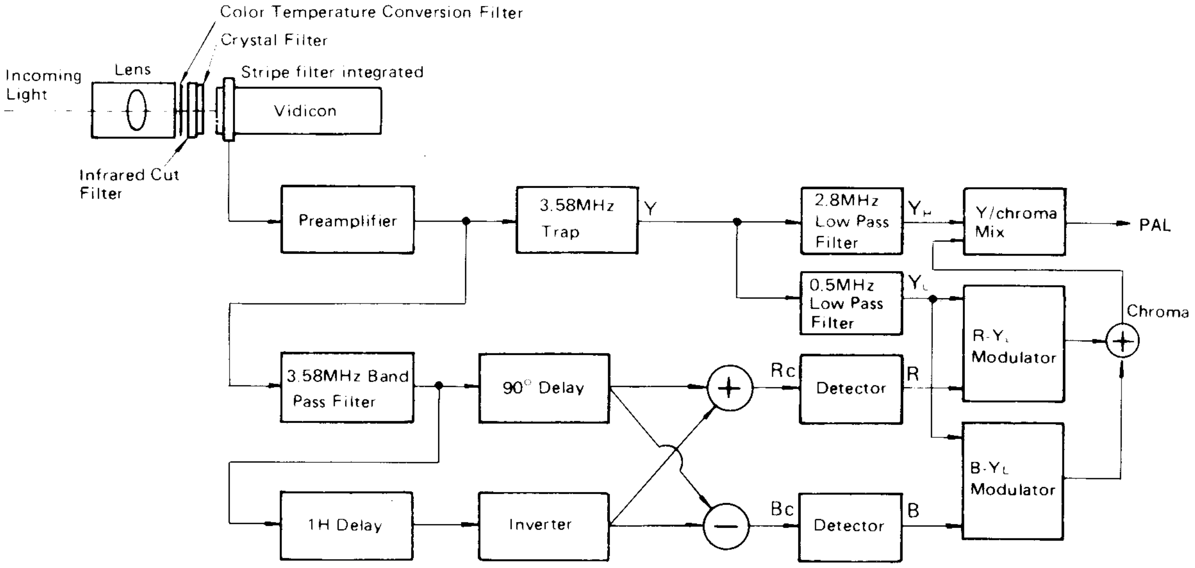

Color Temperature Conversion Filter
Crystal Filter
Incoming Light
Lens
Stripe filter integrated
Vidicon
Infrared Cut Filter
Preamplifier
3.58MHz Trap
Y
2.8MHz Low Pass Filter
Y_H
Y/chroma Mix
PAL
0.5MHz Low Pass Filter
Y_L
Chroma
R-Y_L Modulator
3.58MHz Band Pass Filter
90° Delay
Rc
Detector
R
B-Y_L Modulator
1H Delay
Inverter
Bc
Detector
B

Fig. 1-1 Principle of Single Carrier Frequency Multiplexing System using a Single Tube.

The incoming light to the camera which passes through the automatic iris control (AIC) lens, the color temperature conversion filter, the infrared (IR) cut filter and the crystal filter reaches the surface of the integrated stripe filter in a 2/3" vidicon (S4094P).
The diffusion filter is inserted between the AIC lens and the color temperature coversion filter when the white balance switch is set to CHECK position.

Color Temperature Conversion Filter

Generally, the human eye is sensitive to electromagnetic waves from 380mμ (mμ=nm) to 780mμ in wavelength (the visible region). In addition, the human eye also discerns the wavelength difference as a color difference. The human eye responds to the light between 400mμ to 500mμ wavelength as predominantly blue information, the light between 500mμ to 600mμ as green information, and the light between 600mμ to 700mμ as red information. The entire light in the "visible" range of wavelength from 380mμ to 780mμ is "seen" as different amount of white light.

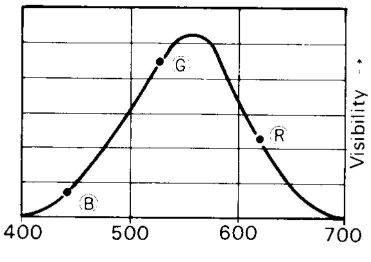


Fig. 1-2 Standard Luminosity Curve

When a carbon is burned, it emits light of a different quality depending on how hot it is. Various natural light can be expressed in terms of a color temperature which may be refered to a light emitted from the burning carbon used as a standard. A light source of 3200°K (K=Kelvin: −273°C corresponds to 0°K an absolute temperature) color temperature, which is used in studios, implies that its quality (color) is the same as that emitted from the carbon burning at 3200°K (2927°C).
The relationship between the color temperature of light sources used for illumination and weather conditions are shown in Fig. 1-4. The color temperature goes up as the weather turns overcast from clear. This may be related to the burning carbon (charcoal) as follows. When the charcoal is heated and begins to glow (at low temperature), it emits a reddish light. But when it is so-called white hot (at high temperature), a bluish light is emitted. In other words, the light at a low color temperature is considered reddish and at high color temperature is considered bluish.

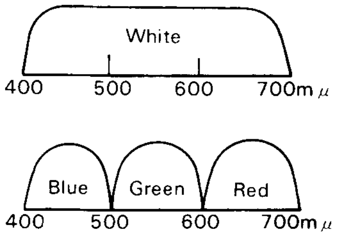

White
400
500
600
700mμ
Blue
Green
Red
400
500
600
700mμ

Fig. 1-3 The Visible Spectrum

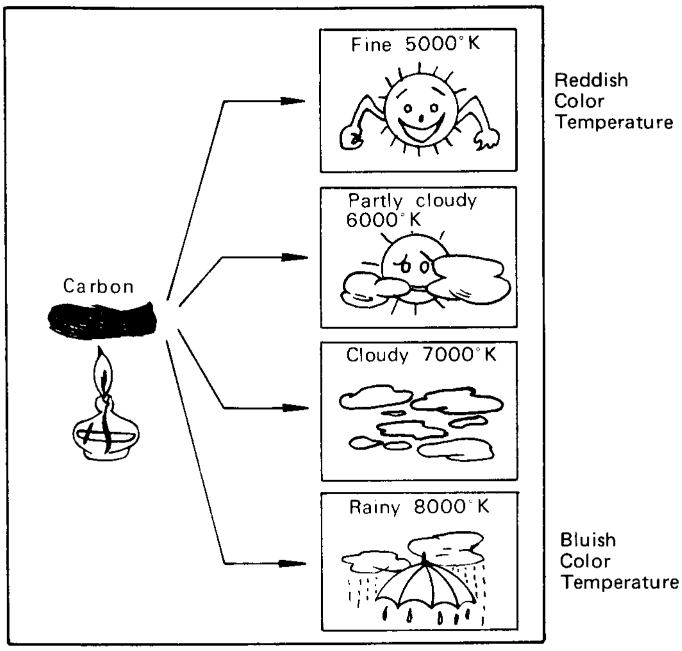


Fig. 1-4 Color Temperature and Weather Conditions

When a color camera is pointed at an object illuminated by a light of low color temperature, it reproduces a reddish picture.

When a color camera is pointed at an object illuminated by a light of high color temperature, it reproduces a bluish picture. The color camera has the indoor-outdoor selection switch which corrects for the color temperature of the light. When the switch is set to the outdoor position, the 5500°K COLOR TEMPERATURE CONVERSION FILTER is inserted into the light path to convert the color temperature from 5500°K to 3200°K. In addition to the indoor-outdoor selection switch utilizing the color temperature conversion filter, this camera is designed so that the level of red and blue signals can be changed independently to meet the color temperature of the light source in order to ensure proper color reproduction.

Infrared Cut Filter

As shown in Fig. 1-5, the vidicon has some sensitivity in the infrared region beyond the visible range. The infrared(IR) cut filter cuts off the infrared light rays which the human eye does not see as light. If the color signal is made by using the video signal corresponding to the infrared rays which the human eye can not normally see, the color of pictures on the monitor and that seen with the naked eye would differ substantially.

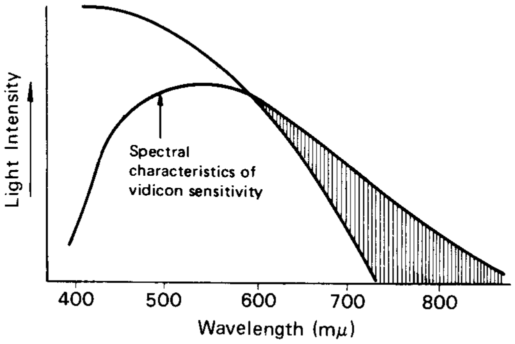


Fig. 1-5 IR Cut Filter Response

Crystal Filter

As described later, since the red and blue images are modulated by the fine stripe filter built into the vidicon, false signals could develop due to interference between the stripe filters and fine detail objects. The crystal filter is an optical low pass filter which prevents the occurrence of such false signals by blocking the high frequency components of images.

Diffusion Filter

When the white balance switch is set to CHECK position, the diffusion filter is inserted between the AIC lens and the color temperature conversion filter to diffuse the incoming light, and the whitish light reaches the vidicon.

Vidicon

Different from that of the black-and white camera, the vidicon used in this color camera has a built-in stripe filter, a metallic strip called the optical black(OB) located on the face-plate. The video signal's black level is set in reference to the signal from the optical black.

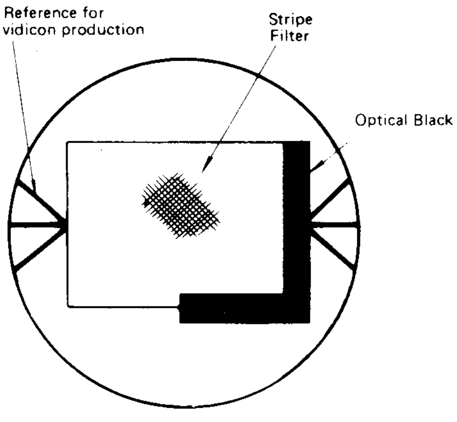


Fig. 1-6 Front View of S4094P Vidicon

As shown in Fig. 1-9 Ⓑ, the stripe filter integrated into the vidicon consists of a cyan/transparent stripe filter section and a yellow/transparent stripe filter section. These stripe filters are so arranged as to be of the same pitch in the horizontal scanning direction, and have equal angles with respect to the vertical. The vidicon's even and odd scanning lines pass the tracks of the stripe filters that are arranged in the same way. In other words, the even and odd scanning lines are spaced "a" apart.

For easy understanding, let's assume that light of uniform level containing green(G), red(R), and blue(B) reaches the vidicon (Fig. 1-9 Ⓐ), and that the crosspoint of cyan and yellow stripe filter is scanned as shown in Fig. 1-9Ⓑ .

Let's consider the light output from the stripe filter. The cyan filter cuts off the red(R) light which is complementary to it, and the yellow filter cuts off the blue(B) light which is complementary to it. (Fig. 1-7).

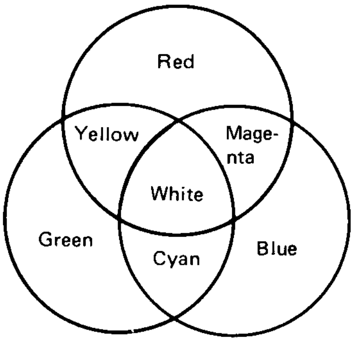


Fig. 1-7 Complementary Color

The light output Ⓒ, which corresponds to the Nth scanning line containes the modulated R and B components, riding on top of unmodulated G component.

The light output Ⓓ , which corresponds to the N+1st scanning line contains the modulated R and B components, riding on top of the unmodulated G component. Light output Ⓔ, Ⓕ, and Ⓖ correspond to N+2nd, N+3rd and N+4th scanning lines respectively. The light Ⓒ for the Nth line and the light Ⓖ for the N+4th line are exactly same.

The stripe filters have the same pitch in the horizontal scanning direction, and the same angle in the vertical directions so that there is a phase difference of 90° among modulated components.

The vidicon produces the video signal whose waveform is the same as that of the light which comes from the stripe filter.

The modulation frequency for the R and B signals can be calculated from the following equation.

$$f = \frac{w \times 10^3}{p \times t} \quad (\text{MHz})$$

Here, f: Modulation frequency (MHz)
w: Horizontal width of effective scanning area of vidicon (mm)
p: Stripe filter pitch (μm)
t: Horizontal video signal duration [line duration (1H)-horizontal blanking duration (H. BL)] (μs)

Specifically;

$w = 7.45$ mm
$p = 40.2\ \mu$m
$t = 1H - H.BL = 64 - 12.25 = 51.75\ \mu s$

$$f = \frac{w \times 10^3}{p \times t} = \frac{7.45 \times 10^3}{40.2 \times 51.75} \fallingdotseq 3.58 \text{ MHz}$$

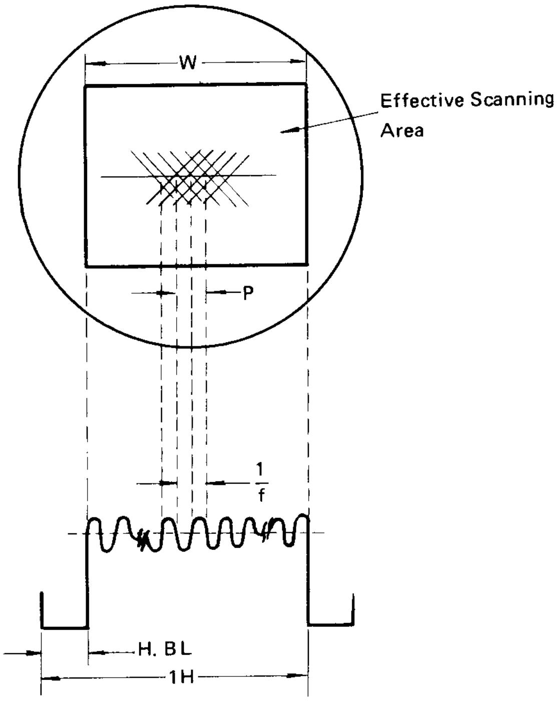


Fig. 1-8 Modulation Frequency

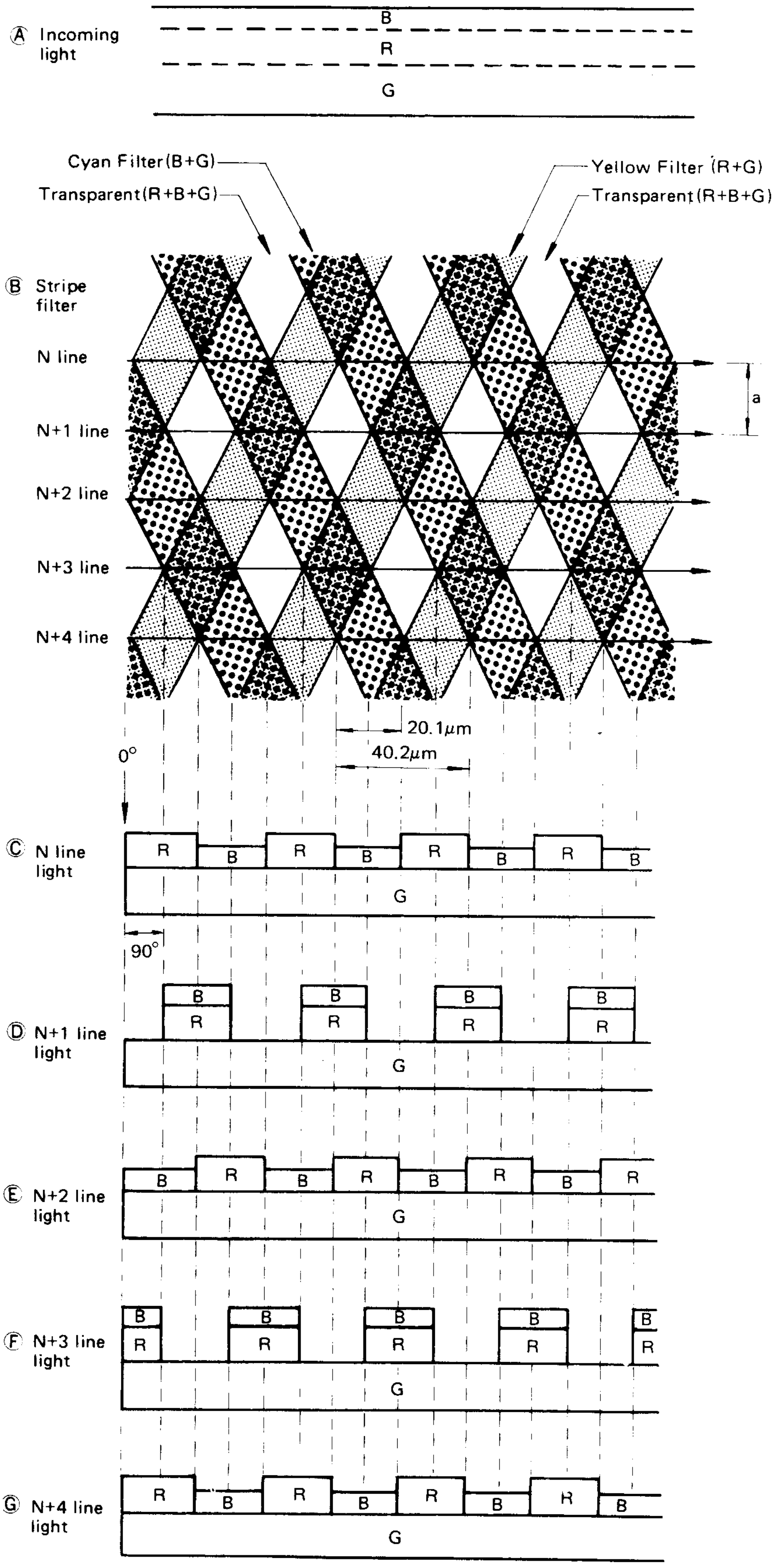

Ⓐ Incoming light
B
R
G
Cyan Filter(B+G)
Transparent(R+B+G)
Yellow Filter (R+G)
Transparent(R+B+G)
Ⓑ Stripe filter
N line
N+1 line
N+2 line
N+3 line
N+4 line
a
20.1μm
40.2μm
0°
Ⓒ N line light
R
B
G
90°
Ⓓ N+1 line light
Ⓔ N+2 line light
Ⓕ N+3 line light
Ⓖ N+4 line light

Fig. 1-9 Light from Stripe Filter

The incoming light is thus covnerted by the integrated stripe filter into a signal which contains R and B signals modulated by 3.58 MHz, and the G signal.

This signal is sent to the preamplifier, where it is amplified. The amplified signal Ⓗ (see Fig. 1-11) from preamplifier is sent to the 3.58 MHz trap circuit, which passes only the luminance (Y) signal Ⓘ comprising the G signal and the mean value of the modulated R and B signals. The mean value of modulated R and B signals on adjacent scanning lines are equal so that the luminance signal corresponding to two successive lines is also equal (see Fig. 1-10) due to the characteristics of the trap circuit.

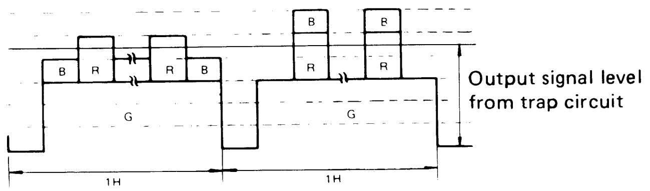

B
R
R
B
B
B
R
R
G
G
Output signal level from trap circuit
1H
1H

Fig. 1-10 Detection of Y signal

The Y signal thus obtained is supplied to the 2.8MHz low pass filter and the 0.5MHz low pass filter. The luminance (Y_H) signal having high frequency response and the luminance signal (Y_L) having low frequency response come out from these low pass filters.

The Y_H signal is supplied to the Y/chroma mix circuit and the Y_L signal to the R-Y_L and B-Y_L modulator circuits.

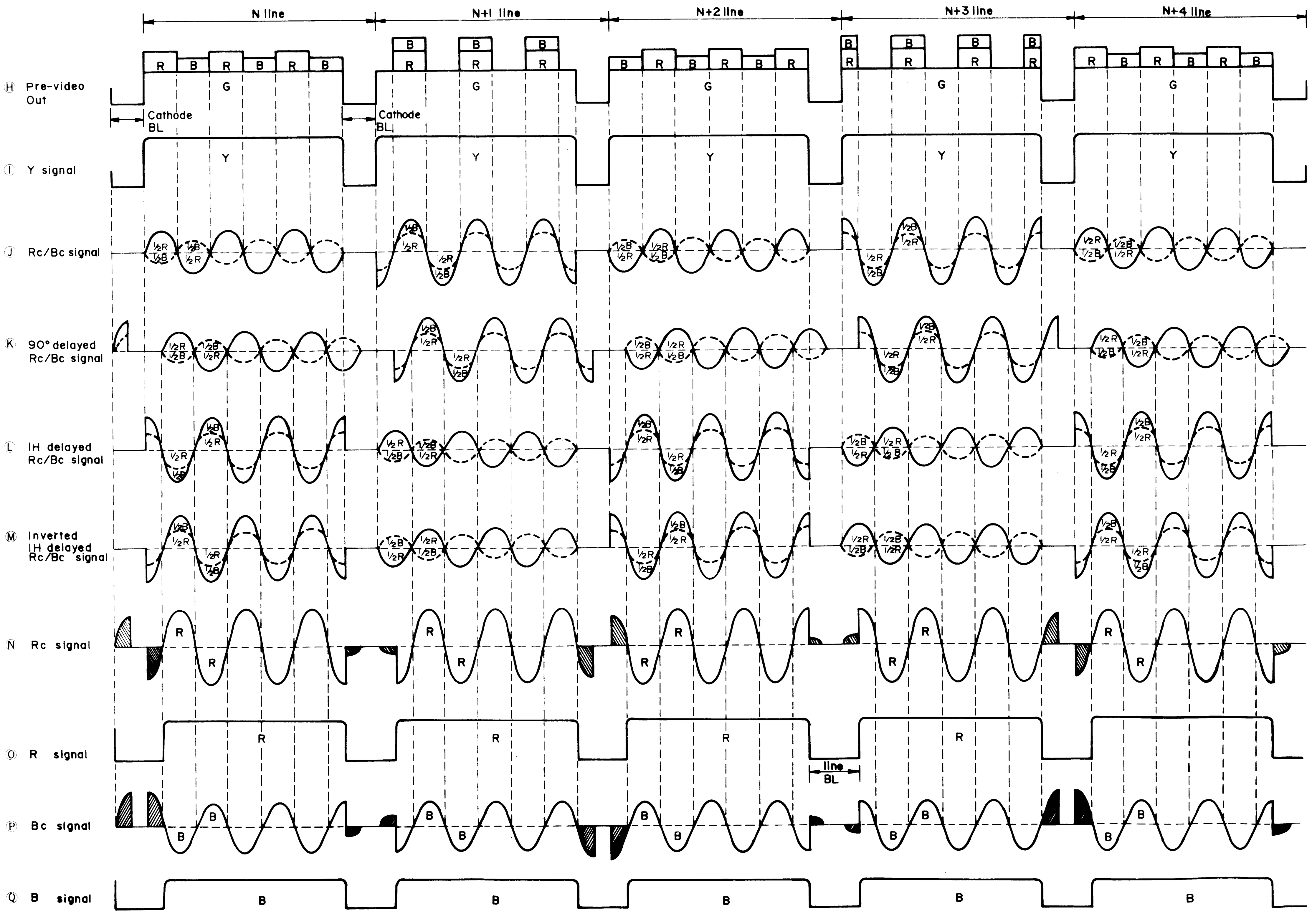
The amplified signal Ⓗ is also supplied to the band-pass-filter (B.P.F.) whose center frequency is 3.58 MHz and through which only the 3.58 MHz modulated signal Ⓙ passes.

The modulated signal Ⓙ is sent to the 90° phase shift circuit and the 1H (1 line) delay circuit, from which 90° phase shifted and 1H delayed modulated signals Ⓚ and Ⓛ are obtained.

The 1H-delayed modulated signal Ⓛ is inverted and the signal Ⓜ is obtained. The modulated R(Rc) signal Ⓝ is obtained by adding the modulated signals Ⓚ and Ⓜ, and the modulated B(Bc) signal Ⓟ is obtained by subtraction of the modulated signals Ⓚ and Ⓜ. The shaded portions on the signals Ⓝ and Ⓟ are removed by mixing the line blanking pulse.

The Rc and Bc signals obtained by addition and subtraction are supplied to detectors, from which R signal Ⓞ and B signal Ⓠ are obtained. The R signal and B signal thus obtained are fed to the R-Y_L and B-Y_L modulator circuits respectively.

The chrominance signal obtained by mixing the R-Y_L and B-Y_L modulated signals is supplied to the Y/chroma mix circuit where it is mixed with the luminance (Y_H) signal to result in a PAL signal.


N line
N+1 line
N+2 line
N+3 line
N+4 line
Ⓗ Pre-video Out
Cathode BL
Ⓘ Y signal
Ⓙ Rc/Bc signal
Ⓚ 90° delayed Rc/Bc signal
Ⓛ 1H delayed Rc/Bc signal
Ⓜ Inverted 1H delayed Rc/Bc signal
Ⓝ Rc signal
Ⓞ R signal
line BL
Ⓟ Bc signal
Ⓠ B signal
R
B
G
Y
½R
½B

*Shaded portions are removed by mixing the line blanking pulse.

Fig. 1-11 Detection of Y, R and B Signals

2. Preamplifier Circuit Board (YWCC005ZK05)

Outline

This circuit amplifies the video current Is (0.2µA-0.3µA) from the vidicon.

The amplified video signal is delivered to the AGC & tracking signal generator circuit on the Process circuit board.

The preamplifier is a low output impedance and negative feedback amplifier which uses a low noise FET at the input.

To maintain the low noise in the signal, a so-called Percival circuit is used. It improves the S/N ratio at relatively high frequencies (where color components are located).

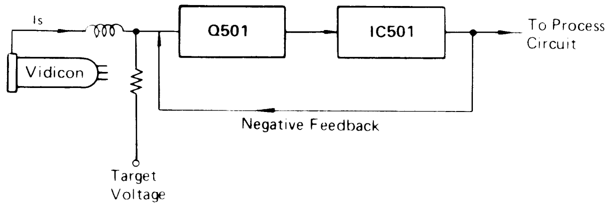

Is
Vidicon
Q501
IC501
To Process Circuit
Negative Feedback
Target Voltage

Fig. 2-1 Preamplifier

Details

The signal current from the vidicon, comprising the modulated red(R) and blue(B) components, and the green(G) component, is supplied to the target terminal of the preamplifier circuit and converted to the video signal by R503 through L501 Percival coil. This video signal is amplified approx. 30dB by the amplifier which consists of Q501 FET and Q5001 inside IC501. The amplified signal is then fed to Q5002 and Q5003 which amplify the input signal approx. 66dB.

The signal at the collector of Q5003 inside IC501 is negatively fed back to the gate of Q501 through a feedback circuit which consists of R5013, R5014, C507 and C508.

The VC501 (FREQUENCY RESPONSE ADJUST) adjusts the frequency response of the feedback signal and corrects the frequency response of video signal.

The video signal whose frequency response is shaped by the negative feedback is converted to the low impedance video signal with the use of a buffer Q5004 inside IC501. It is then supplied to the Process circuit board. (YWV3000EZK2).

The target voltage for the vidicon is supplied from the Deflection circuit board to terminal No. 4 (Target voltage in) of the multi-pin connector CN206. The target voltage, controlled due to the vidicon temperature drift, is supplied to the vidicon target through R502, R501 and L501.

Percival Circuit

The vidicon's output is a low noise signal, so that the video S/N is determined by the noise of the preamplifier. The S/N of the modulated R and B signal is lower than the S/N of the non-modulated signal in the low frequency range due to effects of the vidicon output capacitance and the input capacitance of the preamplifier.

Percival circuit is adopted to reduce the effects of these capacitances and improve the S/N.

The beneficial effects of the Percival circuit are shown in Fig. 2-2. The equivalent circuit is also shown in Fig. 2-3.

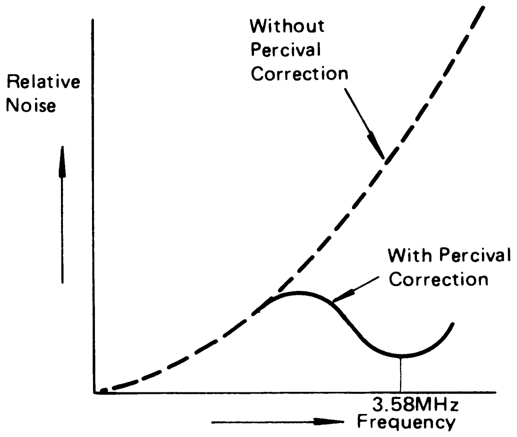
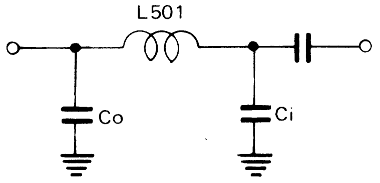


Fig. 2-2 Percival Correction



Where:		
	L501;	Percival coil
	Co ;	Output capacitance of vidicon
	Ci ;	Input capacitance of pre-amp.

Fig. 2-3

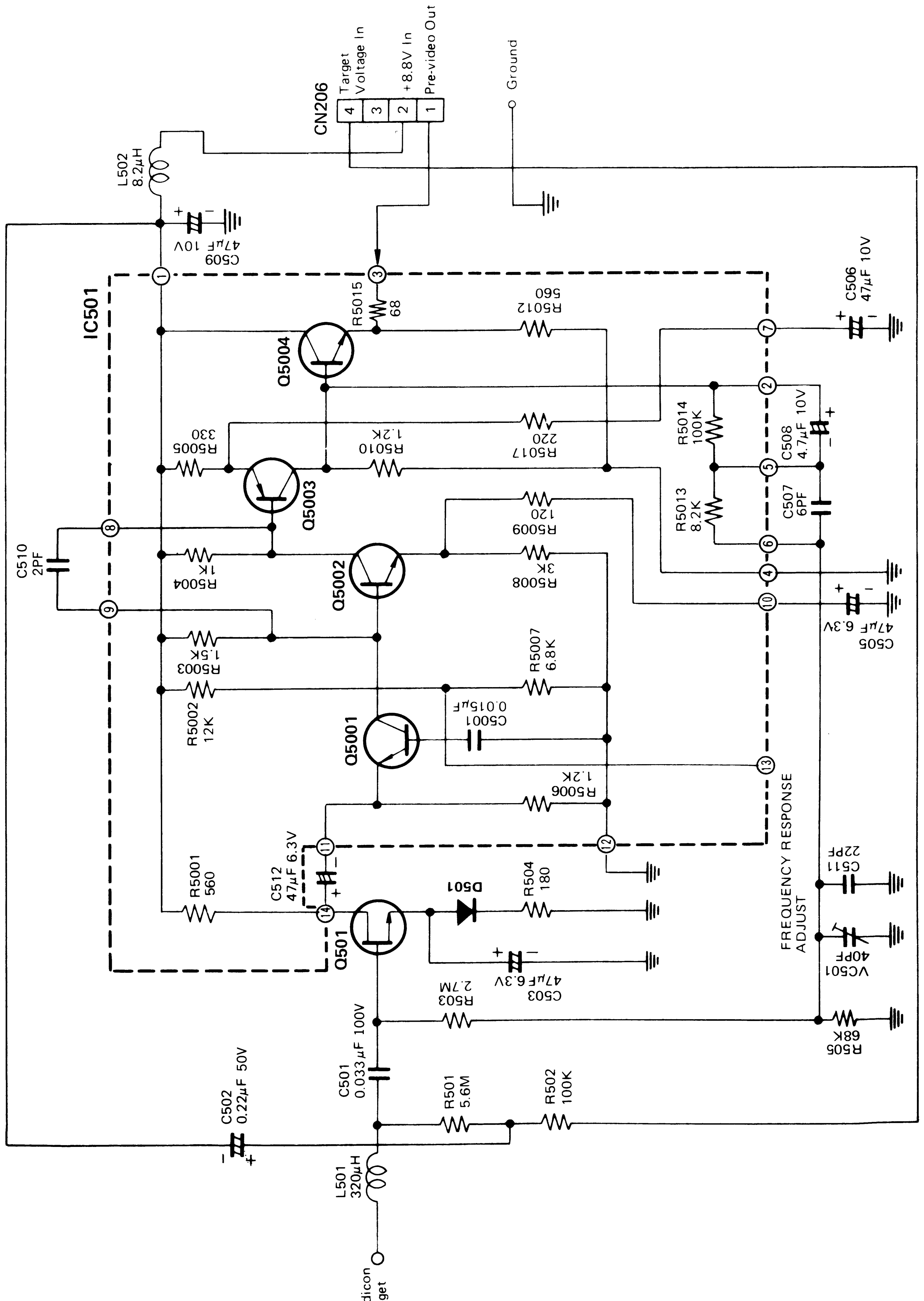

CN206
4 Target Voltage In
3
2 +8.8V In
1 Pre-video Out
Ground
L502 8.2µH
C509 47µF 10V
IC501
R5015 68
R5012 560
Q5004
C506 47µF 10V
R5005 330
R5010 1.2K
R5011 220
R5014 100K
C508 4.7µF 10V
Q5003
R5009 120
R5013 8.2K
C507 6PF
C510 2PF
R5004 1K
Q5002
R5008 3K
C505 47µF 6.3V
R5003 1.5K
R5007 6.8K
R5002 12K
C5001 0.015µF
Q5001
R5006 1.2K
FREQUENCY RESPONSE ADJUST
C511 22pF
R5001 560
C512 47µF 6.3V
D501
R504 180
Q501
VC501 40PF
C503 47µF 6.3V
R503 2.7M
R505 68K
C501 0.033µF 100V
C502 0.22µF 50V
R501 5.6M
R502 100K
L501 320µH
Vidicon target

Fig. 2-4 Preamplifier

3. Deflection Circuit Board (YWV3000EZK1)

The Deflection Circuit Board (YWV3000EZK1) contains following circuits.

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3-2 +6V/+4.5V Regulator Circuit 9
3-3 Audio Amplifier Circuit 9
3-4 Horizontal Sawtooth/Parabola Generator Circuit 9
3-5 Dark Shading Correction & Cathode Blanking Circuit 10
3-6 Dynamic Focus Correction Circuit 10
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3-13 Target Voltage Control Circuit 17
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3-15 EVF Sync Separation Circuit 18
3-16 EVF Vertical Deflection Circuit 19
3-17 EVF Horizontal Deflection Circuit 19
3-18 High Voltage Circuit 20
3-19 Target Protection/Playback Detect Circuit....... 21
3-20 White Balance Indicator Circuit 22

3-1. +9V Regulator Circuit

Outline

This circuit produces a regulated +9V power from the 12V power supplied from the portable VCR or power supply.

Details

The +12V power from the portable VCR or power supply is applied through terminal No.10 of VCR connector, terminal No. 6 of CN104 and F101 to the emitter of Q001 mounted on the chassis.

A voltage regulator in IC103 amplifies the error between the reference and the potential set by VR108 (+9V ADJ) and forwards it to Q001 base. If the Q001 collector potential changes, the potential set by VR108 also changes, and a voltage change appears at the output of the voltage regulator.

This change controls the base current of Q001 in the direction which opposes the voltage change at Q001 collector.

As a result, the output voltage remains constant. VR108 is adjusted for 9V. D303 is the power indicator LED on the rear panel.

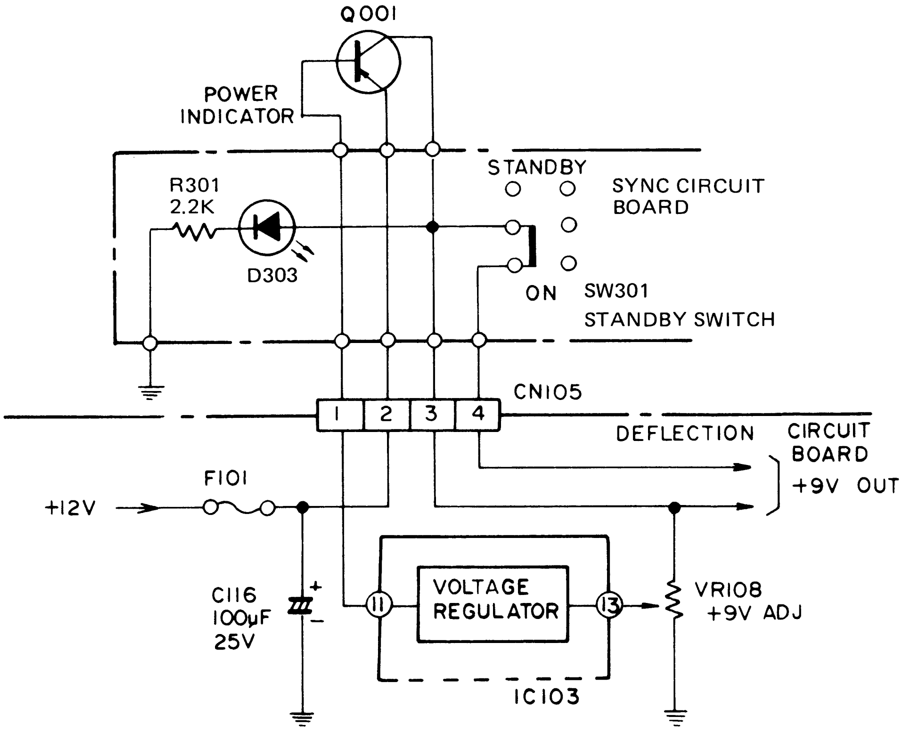


Fig. 3-1 +9V Regulator Circuit

3-2. +6V/+4.5V Regulator Circuit

Outline

+6V and +4.5V are generated by regulating the +9V generated in the +9V regulator circuit. They are used as sub-power supply for other circuits.

Details

The +6V power is generated by regulating the +9V power supply using IC104 (1/2). The output voltage of IC104 (pin 1) is applied to pin 2 of IC104 to form a feedback loop, and thus stabilizing the voltage. The reference voltage is obtained by dividing the +9V using R122 and R123.

The +4.5V is generated by regulating the +9V power supply using another IC104 (1/2). The output voltage of IC104 (pin 7) is applied to pin 6 of IC104 to form a feedback loop, and thus stabilizing the voltage. The reference voltage is obtained by dividing the +9V using R135 – R137.

3-3. Audio Amplifier Circuit

Outline

This circuit amplifies the output from the mounted microphone or external microphone, and sends out the amplified audio signal to the VCR for recording.

Details

The –72dB output from the electret condenser microphone (which is mounted on the camera), or an external microphone is amplified +52dB by IC101(1/2). The low-frequency response characteristic of the audio output is set by C104, C106, R1013 and its high-frequency response characteristic by C105.

The –20dB audio output is sent directly from pin 1 of IC101 to the portable VCR, or via power supply to the table model VCR through terminal No. 7 of VCR connector through terminal No. 8 of CN104.

3-4. Horizontal Sawtooth/Parabola Generator Circuit

Outline

This circuit generates the horizontal sawtooth and parabola waveforms needed in the dark shading correction circuit and dynamic focus correction circuit on the Deflection circuit board.

The horizontal sawtooth and parabola signals are also fed to the Process circuit board for shading correction.

Details

The horizontal scanning start pulse (Hs) from the Process circuit board enters the base of Q101 through terminal No. 1 of BI102. The Hs pulse is then fed to a miller integrator consisting of R105, C107 and IC101 (1/2) and converted into a sawtooth signal.

The H. sawtooth signal at pin 7 of IC101 is fed to the wiper arms of VR102 (H. SAWTOOTH) for the dark shading correction, VR103 (H. SAWTOOTH) for the dynamic focus correction and the Process circuit board through terminal No. 7 of BI102.

The H. sawtooth signal at pin 7 is also supplied to another miller integrator consisting of R1021 in block resistor BR102, C109 and IC102 (1/2) to convert it into a parabola signal.

The H. parabola signal obtained at pin 7 of IC102 is fed to the wiper arms of VR101 (H. PARABOLA) for the dark shading correction, VR104 (H. PARABOLA) for the dynamic focus correction and the Process circuit board through terminal No. 8 of BI102.

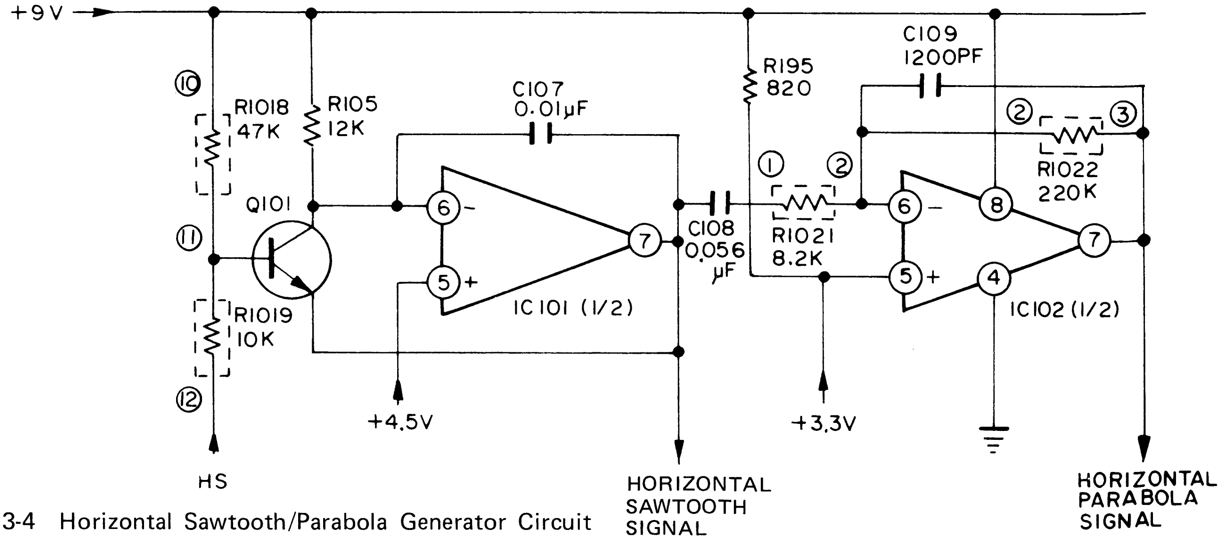


Fig. 3-4 Horizontal Sawtooth/Parabola Generator Circuit

3-5. Dark Shading Correction & Cathode Blanking Circuit

Outline

The vidicon produces dark current when the light is blocked by capping the lens for example. The dark current is not uniform along the entire target structure, but has a "shading" Ⓐ.

As described in the section on the principle of single carrier frequency multiplexing, the red and blue signals are obtained by detecting the modulated signals from the preamplifier output using a band pass filter. Therefore, the red and blue signals are free from dark shading.

However, the luminance signal is obtained by removing the modulated signal using a trap circuit. Therefore, the luminance signal receives undesirable dark shading.

The dark shading correction circuit supplies horizontal sawtooth and parabola signals Ⓑ to the vidicon cathode (K) to correct color shading at low illumination levels.

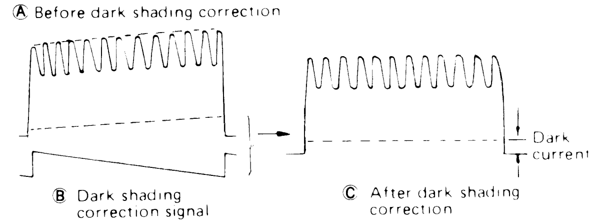

Ⓐ Before dark shading correction
Dark current
Ⓑ Dark shading correction signal
Ⓒ After dark shading correction

Fig. 3-5-1 Dark Shading Correction

This circuit also generates a cathode blanking pulse and supplies it to the vidicon cathode (K) together with the dark shading correction signal in order to eliminate the retrace scanning lines.

Details

The horizontal sawtooth and parabola signals which are generated by the horizontal sawtooth/parabola generator are routed to the wiper arms of the dark shading correction controls VR102 (H. SAWTOOTH) and VR101 (H. PARABOLA).

These signals are applied to both the inverted (pin 2) and non-inverted input (pin 3) of IC102 (1/2), where they are amplified.

The output of IC102 at pin 1 produces a positive or negative dark shading correction signal which depends on the position of these controls.

The horizontal (H) flyback pulse at the collector of H. deflection output Q111 and the vertical scanning start (Vs) pulse from terminal No. 2 of BI102 are supplied to the base of Q102 respectively.

The mixed signal obtained at the collector of Q102 is fed to buffer Q104 through switching amplifier Q103 as a cathode blanking (BL) pulse and mixed with the dark shading correction signal supplied through D101.

The mixed signal at the emitter of Q104 is supplied to the cathode (K) of vidicon through terminal No. 4 of BI103.

3-6. Dynamic Focus Correction Circuit

Outline

Generally, the focus voltage which brings the beam in focus in the center part of the pick-up tube is different in level from the voltage which brings the edge portions of the pick-up tube into best focus so that the modulation depth for the center part and the edge portions of the pick-up tube differ.

When the camera is directed at an evenly illuminated white object, the red and blue signals modulated at 3.58MHz do not have a uniform level, and as a result, a color shading appears. (Fig. 3-6-1 Ⓐ)

The dynamic focus correction circuit supplies horizontal (H) and vertical (V) sawtooth and parabola signals to the vidicon focus electrode (grid-4) together with the DC focus voltage from the high voltage circuit to focus the electron beam along the entire scanning area for correcting unevenness of modulation factor (Fig. 3-6-1 Ⓑ).

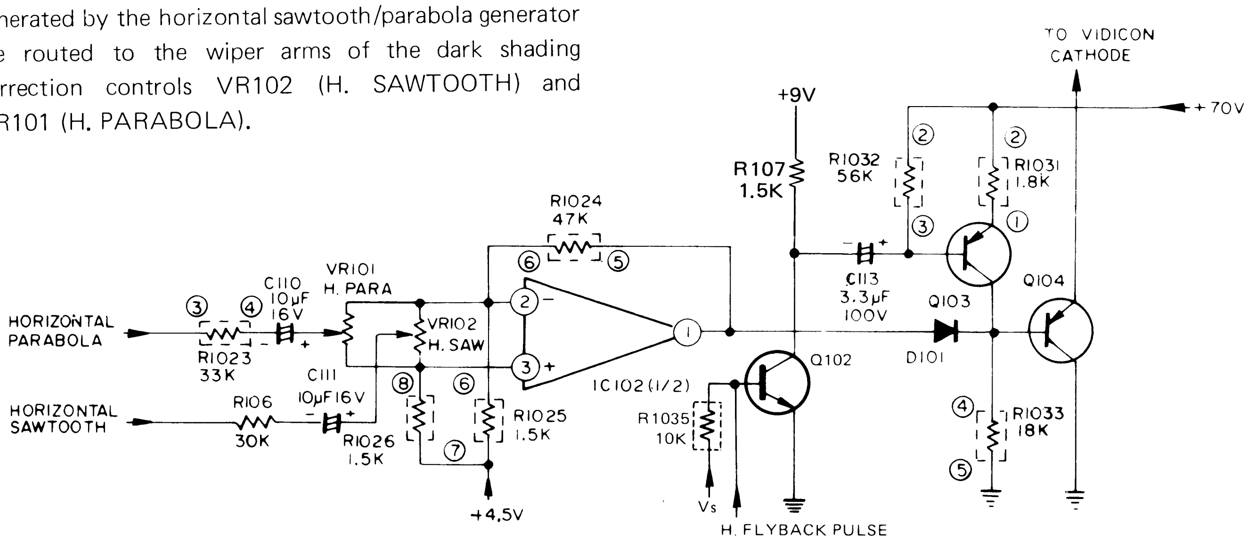

TO VIDICON CATHODE
+70V
+9V
R107 1.5K
R1032 56K
②
②
R1031 1.8K
③
①
R1024 47K
⑥
⑤
C113 3.3µF 100V
Q104
VR101 H. PARA
C110 10µF 16V
③
④
HORIZONTAL PARABOLA
R1023 33K
VR102 H. SAW
②
①
③
Q103
Q102
D101
C111 10µF 16V
⑧
⑥
HORIZONTAL SAWTOOTH
R106 30K
R1026 1.5K
R1025 1.5K
⑦
IC102 (1/2)
R1035 10K
④
R1033 18K
⑤
+4.5V
Vs
H. FLYBACK PULSE

Fig. 3-5-2 Dark Shading Correction & Cathode Blanking Circuit

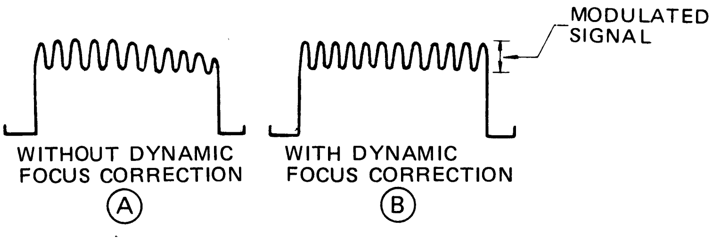

MODULATED SIGNAL
WITHOUT DYNAMIC FOCUS CORRECTION
Ⓐ
WITH DYNAMIC FOCUS CORRECTION
Ⓑ

Fig. 3-6-1 Dynamic Focus Correction

Details

The horizontal sawtooth signal from pin 7 of sawtooth generator IC101(1/2), the horizontal parabola signal from pin 7 of parabola generator IC102(1/2), the vertical sawtooth signal from pin 1 of vertical sawtooth/parabola generator IC106, and vertical parabola signal from pin 7 of IC106 to the wiper arms of dynamic focus correction control VR103 (H. SAWTOOTH), VR104 (H. PARABOLA), VR106 (V. SAWTOOTH) and VR105 (V. PARABOLA) respectively.

These waveforms are applied to both the base and emitter of Q105, where they are amplified. The collector of Q105 produces an inverted or non-inverted signal depending on the position of these controls.

The dynamic focus correction waveform at the collector of Q105 is AC coupled via C115 into vidicon grid-4 (G4) electrode which normally receives the DC voltage adjusted by VR120 (CAMERA FOCUS).

In this way, the electron beam is focused along the entire scanning area, and the unevenness of modulation is corrected.

Note: Dynamic focus should be adjusted when color non-uniformity is seen in the picture of a white card after dark shading is properly adjusted and after electrical focus and beam alignment are correctly set.

To judge whether the camera needs this adjustment, signal shading potentiometers VR208-VR211 (R. Shading Correction) and VR223-VR226 (B. Shading Correction) on the Process circuit board (YWV3000EZK2) must be at their mechanical centers.

Be aware that proper beam alignment has greater contribution to color uniformity than dynamic focus even though it is more difficult to achieve in a hurry.

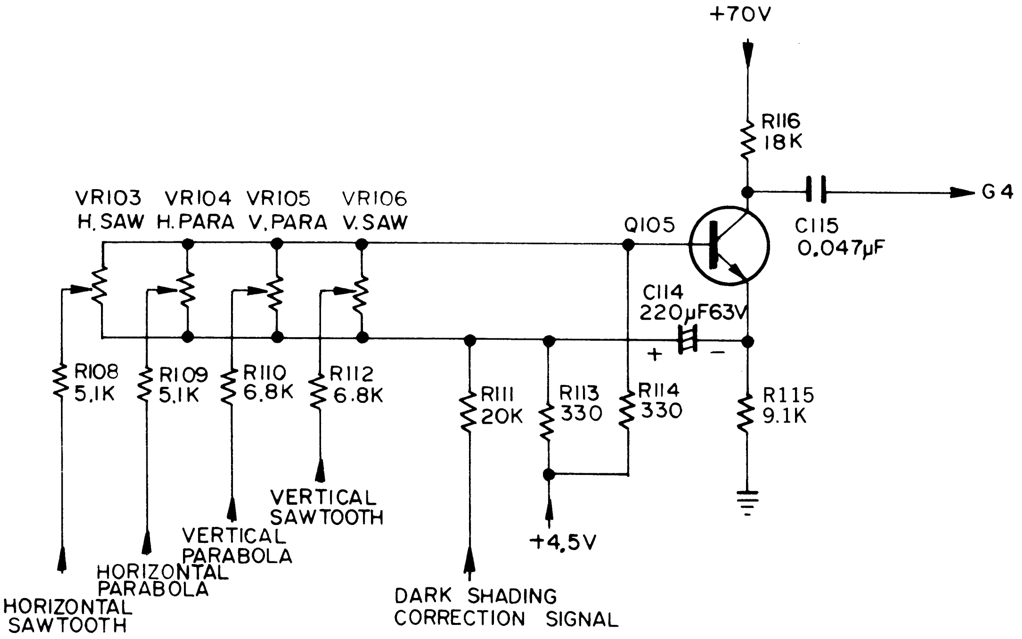

+70V
R116
18K
G4
C115
0.047μF
Q105
C114
220μF63V
+
−
VR103
H.SAW
VR104
H.PARA
VR105
V.PARA
VR106
V.SAW
R108
5.1K
R109
5.1K
R110
6.8K
R112
6.8K
R111
20K
R113
330
R114
330
R115
9.1K
VERTICAL SAWTOOTH
VERTICAL PARABOLA
HORIZONTAL PARABOLA
HORIZONTAL SAWTOOTH
+4.5V
DARK SHADING CORRECTION SIGNAL

Fig. 3-6-2 Dynamic Focus Correction Circuit

3-7. VCR Remote Control Circuit

Outline

This circuit generates VCR start/stop (pause) control signal.
When the VCR is set to the recording mode, the VCR is started by a high potential from this circuit. If a low potential is sent to the VCR, it stops (pauses).

Details

When the power switch is turned ON, the potential at pin 6 and pin 7 of IC103 is set to high and low respectively by a flip-flop circuit inside IC103. When the VCR is set to the recording mode, the high potential at pin 6 is inverted by Q106 and fed via terminal No. 6 of VCR connector through terminal No. 1 of CN104 to the VCR to stop(pause) it.

At the same time, the low potential at pin 7 turns OFF inverter Q116. Therefore, no current flows to the VCR recording indicator D401 in the electronic viewfinder connected to the collector of Q116 and it is turned OFF.

When the non-lock type VCR start/stop switch SW001 is depressed (refer to "FIRST TRIGGER" in Fig. 3-7-2), the negative trigger pulse is generated due to the time constant of R101 – R104 and C101. It is fed to the flip-flop, and causes the flip-flop to change its state. The low potential at pin 6 of IC103 is inverted to a high by Q106 and fed to the VCR to start recording. At the same time, the high potential at pin 7 of IC103 turns ON Q116 and the current flows to the VCR recording indicator D401 lights. When a subsequent trigger pulse is sent to the flip-flop by depressing SW001 again (refer to "SECOND TRIGGER" in Fig. 3-7-2), the flip-flop is inverted. As a result, the VCR is stopped and recording indicator goes OFF.
When the VCR is set into the playback mode, an inhibit signal (high level) from the VCR is supplied to the base of Q108 to turn it ON setting the potential at pin 3 of IC103 to low so that the potential at pin 6 and pin 7 are forced high and low respectively. In this state, even if another trigger pulse is sent to the flip-flop by depressing SW001 again, the flip-flop remains set. Therefore, no current flows to the VCR recording indicator and no VCR recording control signal is sent to VCR from Q106. This condition is maintained until the playback mode is released and set to the recording mode again.

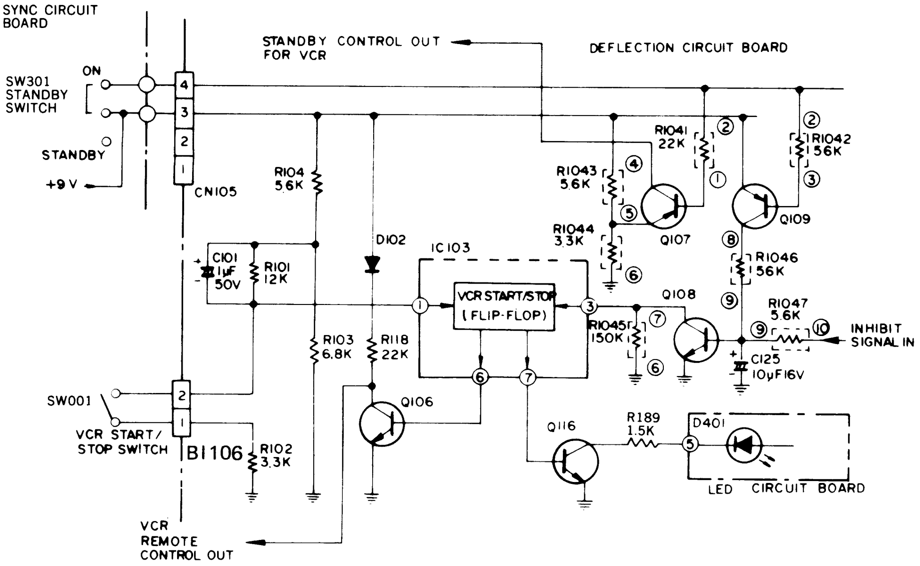

SYNC CIRCUIT BOARD
STANDBY CONTROL OUT FOR VCR
DEFLECTION CIRCUIT BOARD
ON
SW301 STANDBY SWITCH
STANDBY
+9V
CN105
4
3
2
1
R104 5.6K
C101 1μF 50V
R101 12K
D102
IC103
VCR START/STOP (FLIP-FLOP)
R103 6.8K
R118 22K
Q106
SW001
VCR START/STOP SWITCH
BI106
R102 3.3K
VCR REMOTE CONTROL OUT
R1041 22K
R1043 5.6K
R1044 3.3K
Q107
R1042 56K
Q109
R1046 56K
Q108
R1045 150K
R1047 5.6K
INHIBIT SIGNAL IN
C125 10μF16V
Q116
R189 1.5K
D401
LED CIRCUIT BOARD
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩

Fig. 3-7-1 VCR Remote Control Circuit

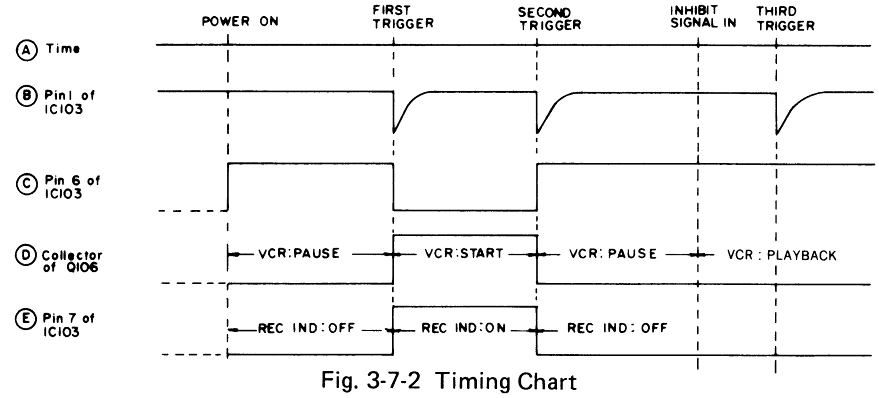


Fig. 3-7-2 Timing Chart

3-8. Standby Circuit

Outline

When recording outdoors, using camera and VCR, the power reserve of the batteries must be conserved as much as possible, which is the exact function of the standby circuit.

Details

When the standby switch SW301 is set to the "ON" position, practically all circuits in the camera and the VCR are operational, that is, the power from +9V source is supplied to all electric circuits in the Process and Deflection circuit boards in the camera and +12V is consumed in the VCR.

When the standby switch SW301 is set to the "STANDBY" position, the power from +9V source goes only to the +6V DC regulator in order to preheat the heater of vidicon tube and cathode ray tube(CRT). At the same time, Q107 turns ON and the VCR receives a standby signal(+3V) from the collector of Q107 to stop (standby) the operation of itself.

Since the +9V DC regulator circuit and the VCR remote control circuit are located in the same IC, the VCR remote control circuit also receives the +9V power in the standby mode. Therefore, the state of flip-flop is controlled by the operation of VCR start/stop switch SW00l and the VCR recording indicator D401 is turned ON/OFF in the standby mode. Q109 turns OFF D401 in the standby mode.
When the standby switch SW301 is set to STANDBY mode, Q109 turns ON causing Q108 ON and the potential at pin 3 of IC103 low. As a result, the potential at pin 6 and pin 7 are forced high and low respectively, and D401 goes OFF.

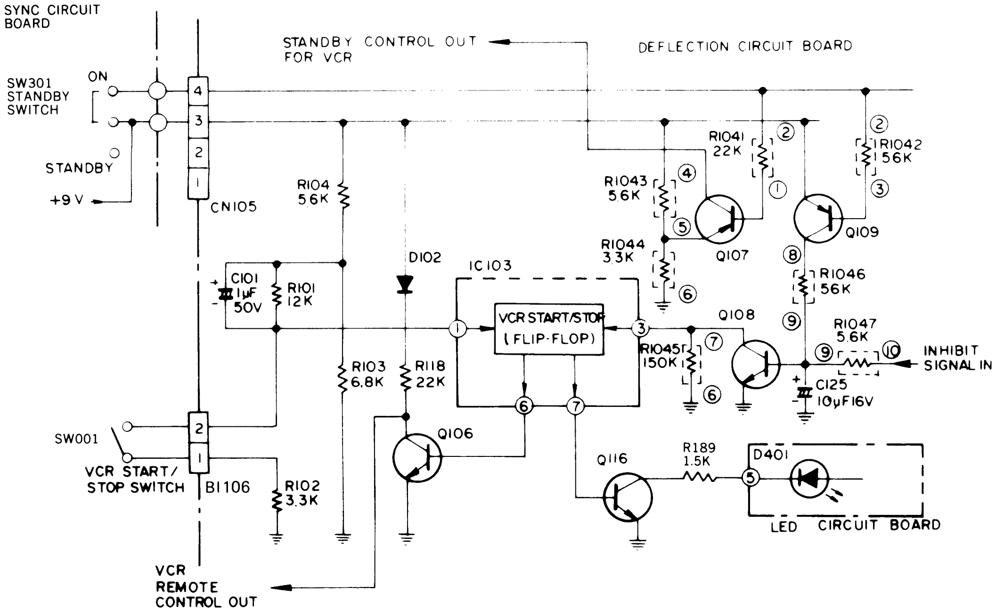

SYNC CIRCUIT BOARD
SW301 STANDBY SWITCH
ON
STANDBY
+9V
CN105
4
3
2
1
STANDBY CONTROL OUT FOR VCR
DEFLECTION CIRCUIT BOARD
R104 5.6K
C101 1μF 50V
R101 12K
D102
IC103
VCR START/STOP (FLIP-FLOP)
R103 6.8K
R118 22K
Q106
R102 3.3K
SW001
VCR START/STOP SWITCH
B1106
VCR REMOTE CONTROL OUT
R1041 22K
R1043 5.6K
R1044 3.3K
Q107
R1042 56K
Q109
R1046 56K
R1047 5.6K
INHIBIT SIGNAL IN
C125 10μF16V
Q108
R1045 150K
Q116
R189 1.5K
D401
LED CIRCUIT BOARD

Fig. 3-8-1 Standby Circuit-1

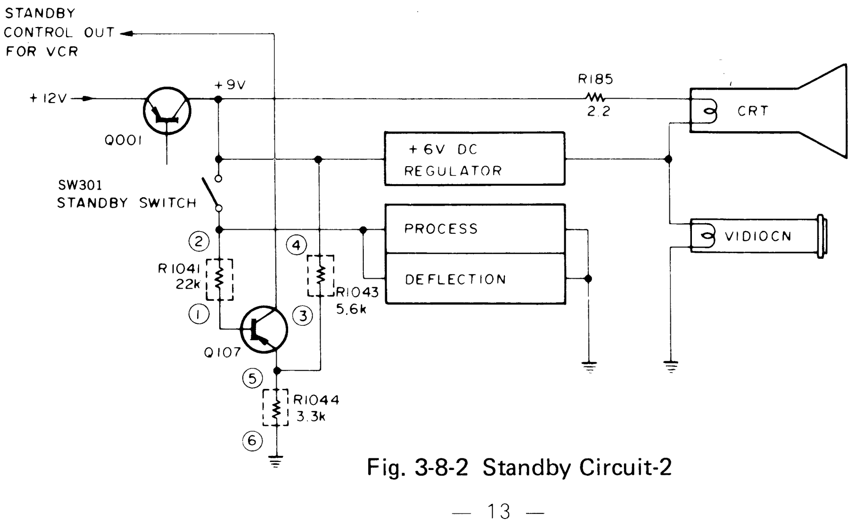

STANDBY CONTROL OUT FOR VCR
+12V
+9V
Q001
R185
2.2
CRT
+6V DC REGULATOR
SW301 STANDBY SWITCH
PROCESS
DEFLECTION
VIDIOCN
R1041 22k
R1043 5.6k
Q107
R1044 3.3k

Fig. 3-8-2 Standby Circuit-2

3-9. Horizontal Deflection Circuit

Outline

This circuit generates the sawtooth current for the horizontal (H) beam deflection inside the vidicon, supplying it to the horizontal deflection coil.

Details

The horizontal scanning start(Hs) pulse supplied from the Process circuit board (YWV3000EZK2) goes via inverter Q110 to horizontal deflection output Q111. When Q111 is switched by the Hs pulse from Q110, the collector current pulse of Q111 resonates with L102 and C133, and the resultant horizontal sawtooth current is supplied to the horizontal deflection coil through pin 6 of CN107. VR109 (CAMERA H. SIZE) is a control for adjusting the horizontal scanning size.

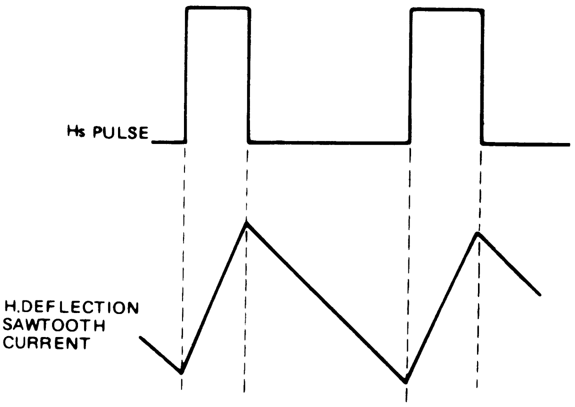

Hs PULSE
H.DEFLECTION SAWTOOTH CURRENT

Fig. 3-9-1 Horizontal Deflection

3-10. Horizontal Linearity Correction Circuit

Outline

The horizontal (H) deflection circuit is of a switching type, so that the generated sawtooth current waveform has poor linearity. By feeding the sawtooth current to the deflection coil, the intensity of the magnetic field generated in the deflection coil is not linear as the vidicon's electron beam is deflected.

If a linear sawtooth current Ⓐ is sent to the deflection coil, however, the magnetic field in the scanning start portion is distorted Ⓑ due to the effect of the vidicon's electrodes, coil hysterisis, etc. As a result, the linearity of the scanning start portion deteriorates, and a shading (unevenness of amplitude) appears on the left edge of the picture.

Therefore, in order to generate a linear magnetic field intensity Ⓓ and to correct the linearity and shading of the scanning start portion, it is necessary to feed a nonlinear sawtooth signal Ⓒ to the deflection coil.

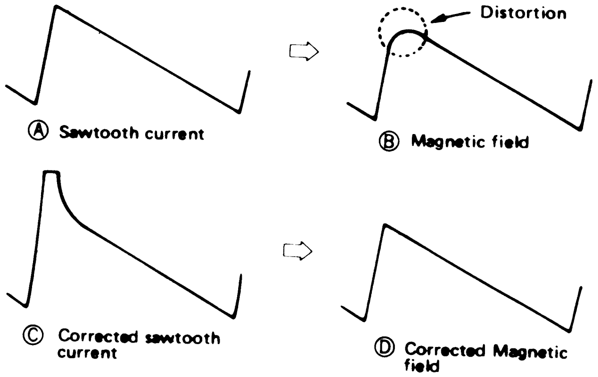

Distortion
Ⓐ Sawtooth current
Ⓑ Magnetic field
Ⓒ Corrected sawtooth current
Ⓓ Corrected Magnetic field

Fig. 3-10-1 Horizontal Linearity Correction-1

This circuit generates a waveform to "correct" the linearity of horizontal sawtooth current waveform and its starting portion. As shown in Fig. 3-10-2, the horizontal deflection circuit is connected to one end of the horizontal deflection coil, and the horizontal linearity correction circuit to the other end.

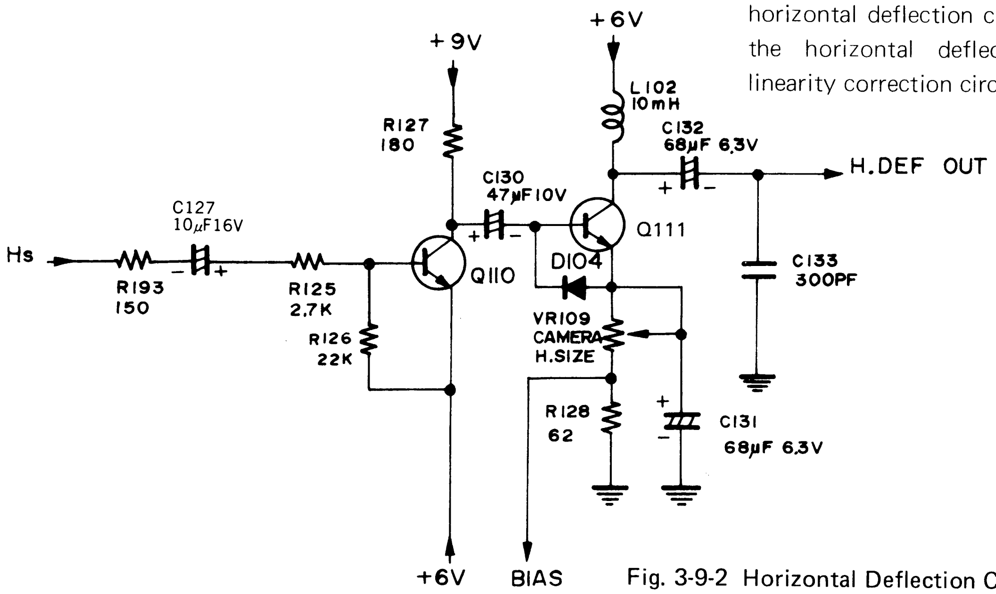

+9V
+6V
L102 10mH
R127 180
C132 68μF 6.3V
H.DEF OUT
C130 47μF 10V
C127 10μF16V
Q111
Hs
R193 150
R125 2.7K
Q110
D104
C133 300PF
R126 22K
VR109 CAMERA H.SIZE
R128 62
C131 68μF 6.3V
+6V
BIAS

Fig. 3-9-2 Horizontal Deflection Circuit

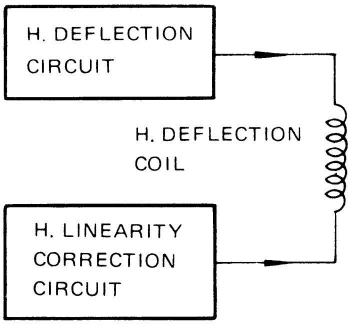

H. DEFLECTION CIRCUIT
H. DEFLECTION COIL
H. LINEARITY CORRECTION CIRCUIT

Fig. 3-10-2
Horizontal Linearity Correction-2

Details

The horizontal flyback pulse Ⓔ produced from the collector of Q111 in the horizontal (H) deflection circuit is integrated by L103 and R191 into a sawtooth signal Ⓕ.

This sawtooth signal is again integrated by L103, R133 and C136 into a parabola signal Ⓖ, which is applied to pin 6 of differential amplifier IC105(1/2) as a horizontal linearity correction signal.

The horizontal flyback pulse Ⓔ from Q111 is integrated by R132 and C134 into a linearity correction signal Ⓗ for correcting the linearity of the starting portion of the horizontal sawtooth current waveform. The starting portion linearity correction signal Ⓗ is applied to pin 5 of IC105 where the linearity correction signal Ⓖ and the starting portion linearity correction signal Ⓗ are mixed and amplified.

The mixed signal Ⓘ of these linearity correction signals at pin 7 of IC105 is fed to the horizontal deflection coil to correct the linearity of the horizontal sawtooth current waveform.

VR110 (H. LIN) is a control for adjusting the linearity of the starting portion. VR111(H. CENTERING) is a centering control which controls the positive input potential of IC105 to change the direct current flowing to the deflection coil, and thus sets the horizontal scanning position on the vidicon.

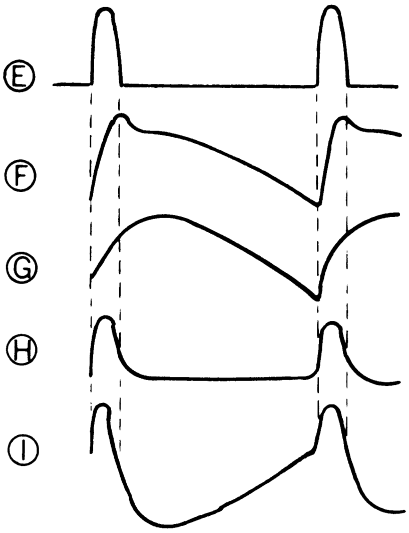


Fig. 3-10-3
Horizontal Linearity Correction-3

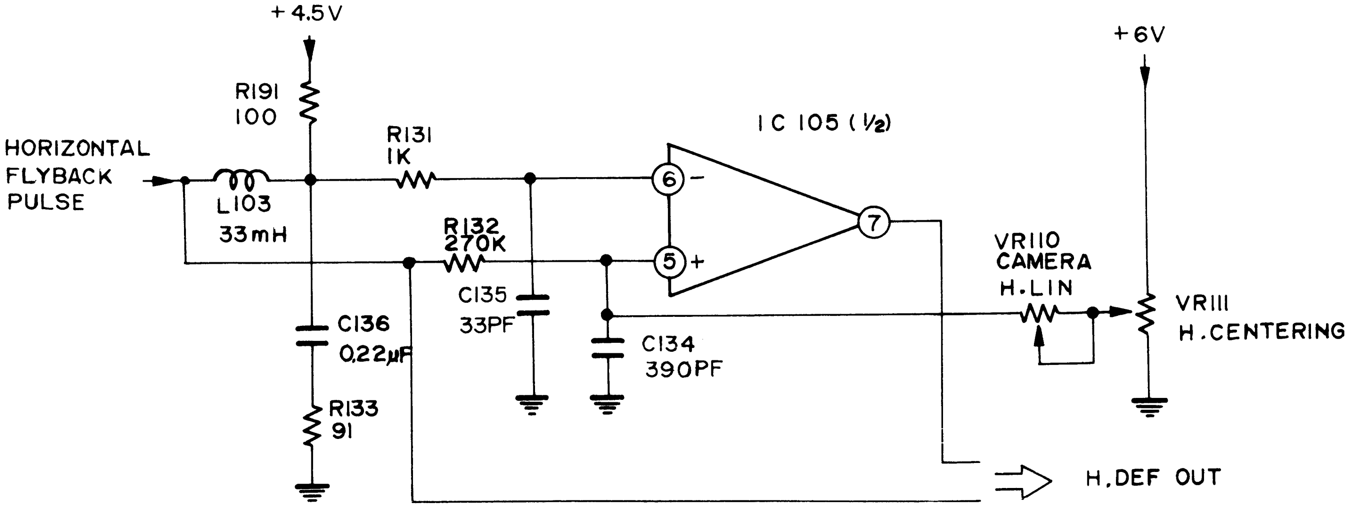

+4.5V
R191
100
HORIZONTAL
FLYBACK
PULSE
L103
33mH
R131
1K
R132
270K
C135
33PF
C136
0.22μF
R133
91
C134
390PF
IC 105 (1/2)
6 −
5 +
7
+6V
VR110
CAMERA
H.LIN
VR111
H.CENTERING
H.DEF OUT

Fig. 3-10-4 Horizontal Linearity Correction Circuit

3-11. Vertical Deflection Circuit

Outline

This circuit generates a sawtooth current for the vertical(V) beam deflection inside the vidicon, feeding it to the vertical deflection coil.

Details

The vertical scanning start(Vs) pulse sent from the Process circuit board (YWV3000EZK2) is fed to sawtooth generator Q112 which converts it into a vertical rate sawtooth.

This sawtooth signal is applied to pin 2 of the amplifier IC105(1/2), which produces an amplified vertical sawtooth signal from its output pin 1. This amplified signal is sent to the vertical deflection coil. The sawtooth current flowing to the vertical deflection coil is detected by R141 which is connected in series with the deflection coil, and fed back to sawtooth generator Q112, thus correcting the linearity of the vertical sawtooth waveform. Therefore, a linear sawtooth current flows in the vertical deflection coil.

The vertical sawtooth signal detected by R141 is applied through R1055 to the vertical sawtooth/parabola generator circuit IC106.

VR112(V.SIZE) is the control for changing the amplitude of the vertical deflection sawtooth waveform to set vertical scanning size. VR113(V.CENTERING) is a centering control which controls the direct current flowing to the vertical deflection coil to set the vertical scanning position on the vidicon.

3-12. Vertical Sawtooth/Parabola Generator Circuit

Outline

This circuit generates the vertical sawtooth and parabola waveforms needed in the dynamic focus correction circuit on the Deflection circuit board. The vertical sawtooth and parabola signals are also fed to the Process circuit board for shading correction of red and blue signals.

Details

The vertical(V) deflection sawtooth signal generated in the vertical deflection circuit is fed to pin 3 of IC106 where it is amplified. The amplified V.sawtooth signal at pin 1 of IC106 is supplied to the miller integrator consisting of IC106(1/2), R1051 in BR105, R149, C144 and C145, and converted into a V.parabola signal. The V. sawtooth signal and V.parabola signal at pin 1 and pin 7 of IC106 are applied respectively to the wiper arms of VR106 (V.SAWTOOTH) and VR105 (V. PARABOLA) in the dynamic focus correction circuit, and the Process circuit board through terminal No. 10 and No. 9 of BI102 for the shading correction of red and blue signals.

The V.sawtooth signal is also supplied to the target protection circuit.

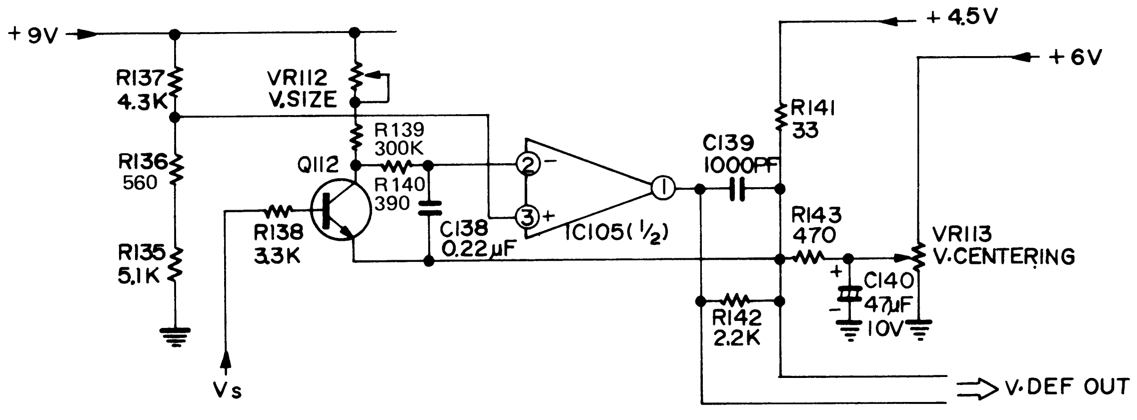


Fig. 3-11 Vertical Deflection Circuit

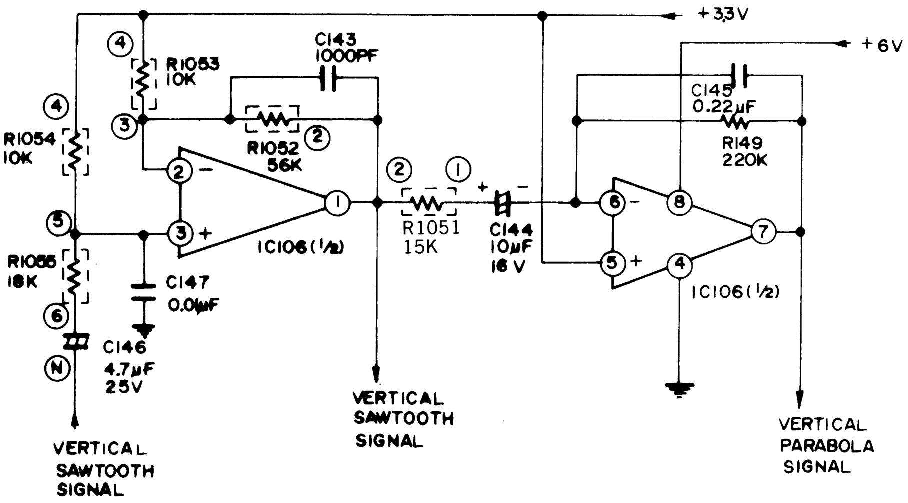

+3.3V
+6V
C143
1000PF
R1053
10K
R1054
10K
R1052
56K
R1055
18K
C147
0.01μF
C146
4.7μF
25V
IC106(½)
R1051
15K
C144
10μF
16V
C145
0.22μF
R149
220K
IC106(½)
VERTICAL SAWTOOTH SIGNAL
VERTICAL SAWTOOTH SIGNAL
VERTICAL PARABOLA SIGNAL

Fig. 3-12 Vertical Sawtooth/Parabola Generator Circuit

3-13. Target Voltage Control Circuit

Outline

The pick-up tube gives out an output signal which corresponds to the incoming light intensity. Even when no light reaches the tube, an output signal, called dark current is produced. The vidicon's dark current is relatively large and varies according to the vidicon temperature so that the black level of the output signal tends to drift causing color shift.

The target voltage control circuit detects the vidicon's temperature variation, and controls the target voltage according to the temperature drift, and thus reduces dark current variations.

This circuit, and the optical black clamp circuit minimize the black level variations.

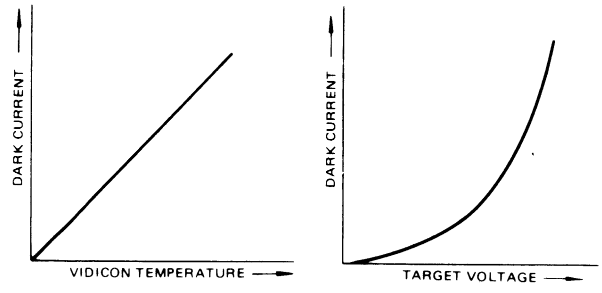


Fig. 3-13-1 Characteristic of Vidicon

Details

The deflection coil assembly has a built-in temperature detecting thermistor which is connected between terminal 1 of the multi-pin connector CN107 and ground.

When the inside temperature of the coil assembly changes(it also changes in the vidicon) the thermistor resistance changes, causing the collector current of the DC amplifier Q115 to change which in turn changes the collector voltage.

The target voltage applied to the vidicon is set by VR114 (TARGET).

If the temperature goes up, the resistance of the thermistor decreases so that the total resistance connected between the emitter of Q115 and ground decreases, and the current flowing through the collector and emitter increases.

Accordingly, the collector potential of Q115 falls, and the target voltage which is set by VR114 is reduced. Reduced target voltage causes less output from the tube. In this way, the video dark current which is raised by an increase in temperature is lowered.

When the temperature falls, the reverse operation takes place.

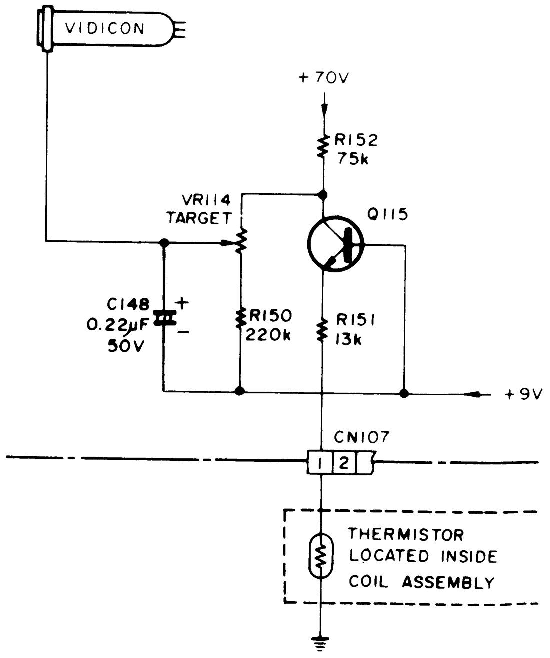

VIDICON
+70V
R152
75k
VR114
TARGET
Q115
C148
0.22μF
50V
R150
220k
R151
13k
+9V
CN107
1
2
THERMISTOR
LOCATED INSIDE
COIL ASSEMBLY

Fig. 3-13-2 Target Voltage Control Circuit

3-14. EVF Video Amplifier Circuit

Outline

This circuit amplifies the PAL signal supplied from the Process circuit board and fed it to the cathode ray tube(CRT) together with the blanking pulse which is used to block retrace line on the CRT screen.

Details

The PAL signal from the Process circuit board is applied to an amplifier in IC103 through terminal No. 2 of CN103, R117, CL101 and VR107 (CONTRAST).

CL101 is a trap for removing the chrominance component in the PAL signal.

The amplified signal obtained at pin 9 of IC103 is mixed with both the horizontal(H) and vertical(V) blanking pulses by resistance mix using R171, R170 and R161.

The mixed signal is then supplied to the grid-1 (G1) of the CRT through terminal No. 4 of BI105 and amplifier Q124 together with the DC voltage set by VR121 (BRIGHTNESS). When the white balance switch on the side of the camera is set to the CHECK position, the white balance indicator signal generated in the indicator circuit is also mixed with the video signal through R187.

3-15. EVF Sync Separation Circuit

Outline

This circuit generates the sync pulses from the composite PAL signal supplied from the Process circuit board and sends the horizontal (H) sync pulse to the H.deflection circuit and vertical(V) sync pulse to the V.deflection circuit.

Details

The PAL signal from the Process circuit board is supplied to a sync senarator in IC103 through terminal No. 2 of BI107, R117 and CL101.

The sync separator in IC103 detects only sync pulse of video signal.

The separated sync pulse at pin 17 of IC103 is fed to phase comparator in IC108, where only the H.sync pulse passes. The H.sync pulse is then fed to the horizontal deflection circuit for the viewfinder.

The sync pulse at pin 17 of IC103 is applied to the integrator consisting of R120 and C121, where only the V.sync pulse is passed. The V.sync pulse is applied to the vertical deflection circuit for the viewfinder.

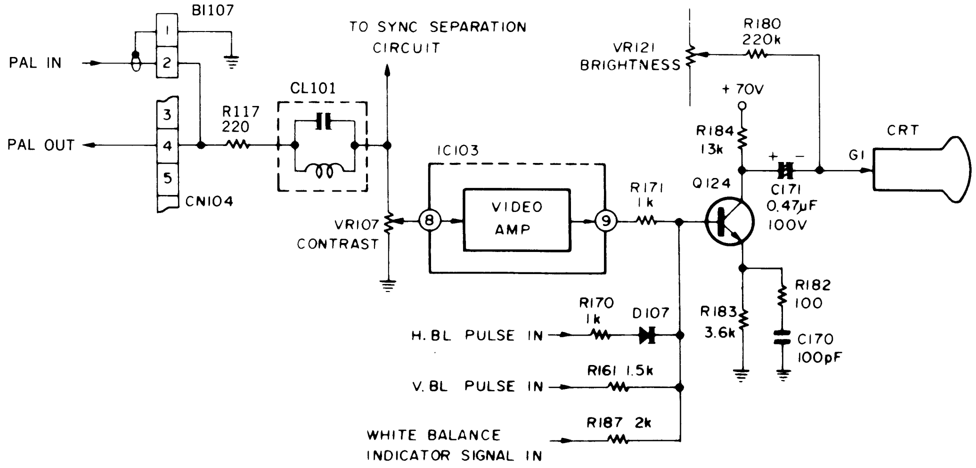

BI107
PAL IN
PAL OUT
CN104
R117 220
CL101
TO SYNC SEPARATION CIRCUIT
IC103
VIDEO AMP
VR107 CONTRAST
VR121 BRIGHTNESS
R180 220k
+70V
R184 13k
Q124
R171 1k
C171 0.47μF 100V
CRT
G1
R182 100
C170 100pF
R183 3.6k
R170 1k
D107
H. BL PULSE IN
R161 1.5k
V. BL PULSE IN
R187 2k
WHITE BALANCE INDICATOR SIGNAL IN

Fig. 3-14 EVF Video Amplifier Circuit

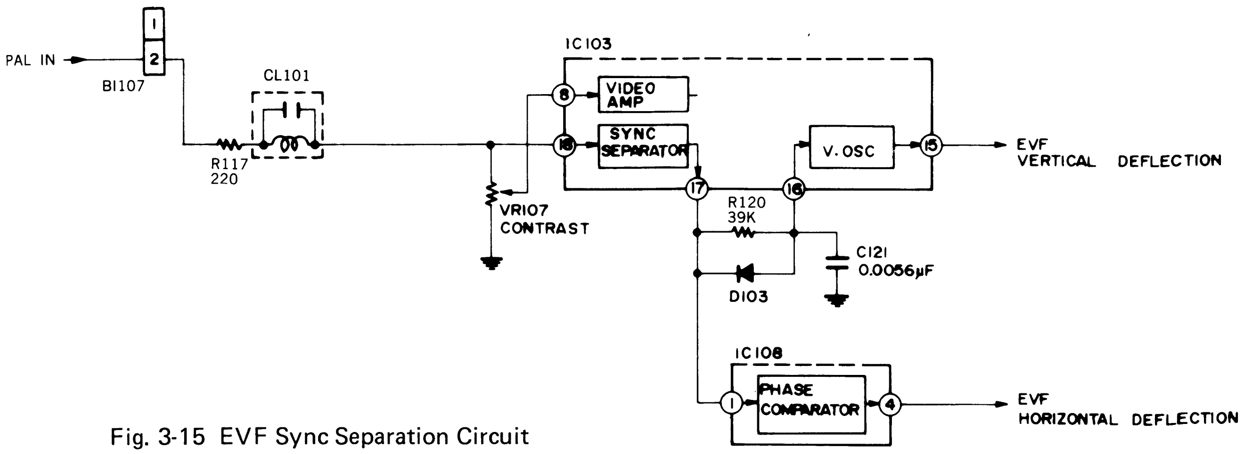

PAL IN
BI107
CL101
R117 220
IC103
VIDEO AMP
SYNC SEPARATOR
V. OSC
VR107 CONTRAST
R120 39K
C121 0.0056μF
D103
IC108
PHASE COMPARATOR
EVF VERTICAL DEFLECTION
EVF HORIZONTAL DEFLECTION

Fig. 3-15 EVF Sync Separation Circuit

3-16. EVF Vertical Deflection Circuit

Outline

This circuit generates vertical deflection sawtooth current for vertical scanning of beam inside the cathode ray tube (CRT).

Details

The vertical (V) sync pulse generated from the video composite signal in the sync separation circuit is fed to the V.oscillator (OSC) inside IC103 as a trigger pulse. The V.OSC is a free-running sawtooth generator whose frequency is approximately 45Hz When the trigger pulse is supplied to the V.OSC, it generates a 50Hz sawtooth signal.

The V.sawtooth signal obtained at pin 15 of IC103 is fed to pin 2 of amplifier IC107, where it is amplified.

The amplified V.sawtooth signal at pin 5 of IC107 is fed to the V.deflection coil through terminal No. 3 of CN106.

VR115(EVF V.SIZE) is a control for vertical scanning size.

The V.sawtooth signal at pin 5 of IC107 is also supplied to switching amplifier Q117 where a vertical blanking (V.BL) pulse is generated. The V. BL pulse is then mixed with the video signal through R161.

3-17. EVF Horizontal Deflection Circuit

Outline

This circuit generates the horizontal deflection sawtooth current for horizontal scanning of the beam inside the cathode ray tube (CRT). This circuit controls the frequency (phase) of the horizontal sawtooth current to correspond to that of horizontal sync pulse separated from the video signal.

Details

The horizontal (H) sync pulse from the sync separator inside IC103 is applied to the phase comparator inside IC108.

The flyback pulse obtained at the secondary winding of transformer T101 is fed to the integrator consisting of R163 and C156 and converted into a H.sawtooth signal. The H.sawtooth signal is supplied through C157 to the phase comparator and compared with the H.sync pulse in phase. The DC voltage corresponding to the phase difference is fed to the H.oscillator (H.OSC) inside IC108 through pin 4 and 9 to control the its oscillation frequency.

In this way, the H.OSC is automatically controlled to match its oscillation frequency with that of the sync pulse.

VR116(H.HOLD) is a control for setting the oscillation frequency in a steady state.

The frequency controlled H.pulse from the H.OSC is then fed to the H.deflection output Q119 through the H.driver inside IC108. The H.deflection sawtooth current is supplied to the H.deflection coil from Q119 through C163, L104/R168 and terminal No. 1 of CN106.

VR117(EVF H.SIZE) is a control for the horizontal scanning size.

The flyback pulse at the collector of Q119 is supplied to the high voltage circuit through buffer Q120/Q121. The H. pulse at the emitters of Q120/Q121 is mixed with the video signal through R170 and D107 as a H.blanking pulse.

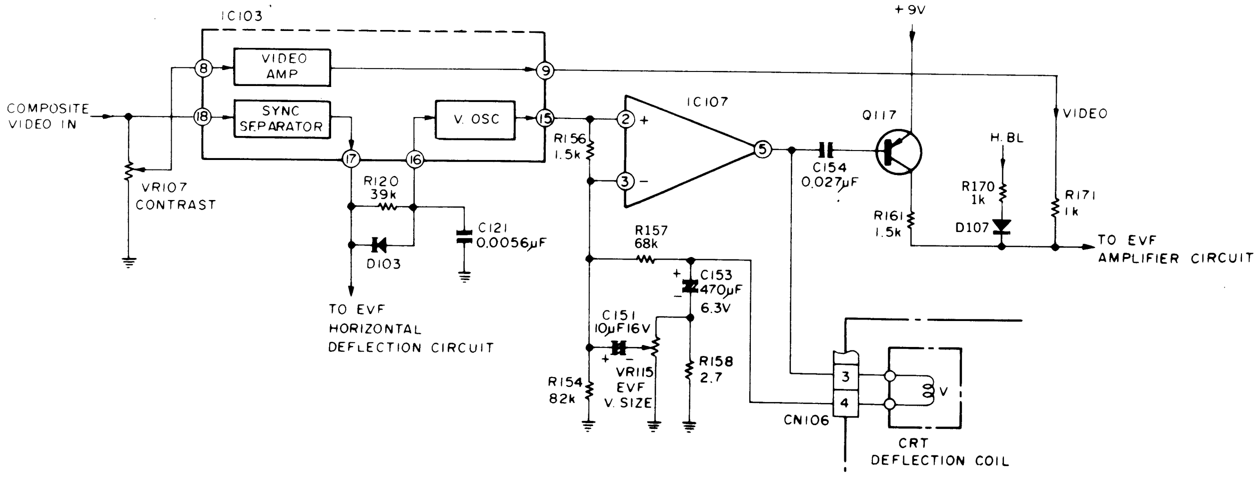

IC103
VIDEO AMP
SYNC SEPARATOR
V. OSC
8
18
17
16
9
15
COMPOSITE VIDEO IN
VR107 CONTRAST
R120 39k
D103
C121 0.0056μF
TO EVF HORIZONTAL DEFLECTION CIRCUIT
R156 1.5k
IC107
2 +
3 −
5
R157 68k
C153 470μF 6.3V
C151 10μF16V
VR115 EVF V. SIZE
R154 82k
R158 2.7
C154 0.027μF
+9V
Q117
R161 1.5k
H. BL
R170 1k
D107
VIDEO
R171 1k
TO EVF AMPLIFIER CIRCUIT
CN106
3
4
V
CRT DEFLECTION COIL

Fig. 3-16 EVF Vertical Deflection Circuit

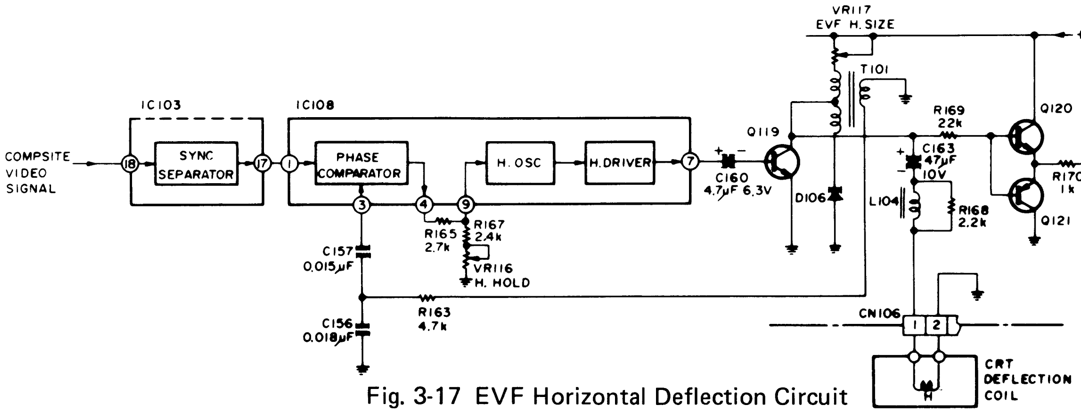

VR117
EVF H. SIZE
+9V
T101
IC103
IC108
R169
22k
Q120
Q119
COMPSITE VIDEO SIGNAL
SYNC SEPARATOR
PHASE COMPARATOR
H. OSC
H. DRIVER
C163
47μF
10V
C160
4.7μF 6.3V
D106
L104
R170
1k
D107
H. BL
R168
2.2k
Q121
R167
2.4k
R165
2.7k
C157
0.015μF
VR116
H. HOLD
R163
4.7k
C156
0.018μF
CN106
CRT DEFLECTION COIL
H

Fig. 3-17 EVF Horizontal Deflection Circuit

3-18. High Voltage Circuit

Outline

This circuit generates high voltages needed for the vidicon and the cathode ray tube(CRT).

Details

The flyback pulse generated in the viewfinder horizontal deflection circuit is supplied to the primary winding of step-up transformer in T102 to step up the flyback pulse to necessary level. The boosted pulses obtained at the secondary winding of step-up transformer are rectified to generate high voltages.

The high voltages for the CRT are derived as follows.

+4.5KV obtained by rectifying the boosted pulse is supplied to the CRT anode.

The voltage for grid-1(G1) is derived by dividing −60V(obtained at pin 10 of T102) with VR121 (BRIGHTNESS). It is fed to G1 together with the video signal.

The voltage for grid-2(G2) is derived by dividing +340V(obtained at pin 8 of T102) with R176 and R179. +620V(obtained at pin 13 of T102) is fed to grid-3(G3) through VR119(EVF FOCUS). The heater voltage(3V) is obtained by supplying +9V and +6V to each end of heater respectively.

The high voltages for the vidicon are derived as follows. The −60V obtained at pin 10 of T102 is fed to grid-1(G1) through VR118(BEAM). The +340V at pin 8 of T102 is applied to grid-2 (G2) directly. +1.5KV obtained at pin 14 of T102 is supplied to grid-6(G6). The voltages for grid-4(G4) and grid-5(G5) are obtained by dividing +1.5KV by block resistor BR107 and VR120 (CAMERA FOCUS). +6V is fed to the heater.

Q122 prevents a beam spot appearing on the CRT screen for a while after the Power switch is turned OFF.

In the operating condition, Q122 is energized and the proper voltage for grid-1(G1) of CRT is set between +9V and −60V by VR121(BRIGHTNESS). When the power switch is turned OFF, Q122 becomes OFF and VR121 is disconnected from the +9V line. Therefore, −60V charged into the capacitor inside T102 is not discharged and −60V is fed to G1 of CRT. In this way, the electron beam is blocked preventing beam spot on the CRT screen.

The +70V obtained at pin 9 of T102 is fed to the cathode blanking circuit, dynamic focus correction circuit, target voltage control circuit and viewfinder video output circuit.

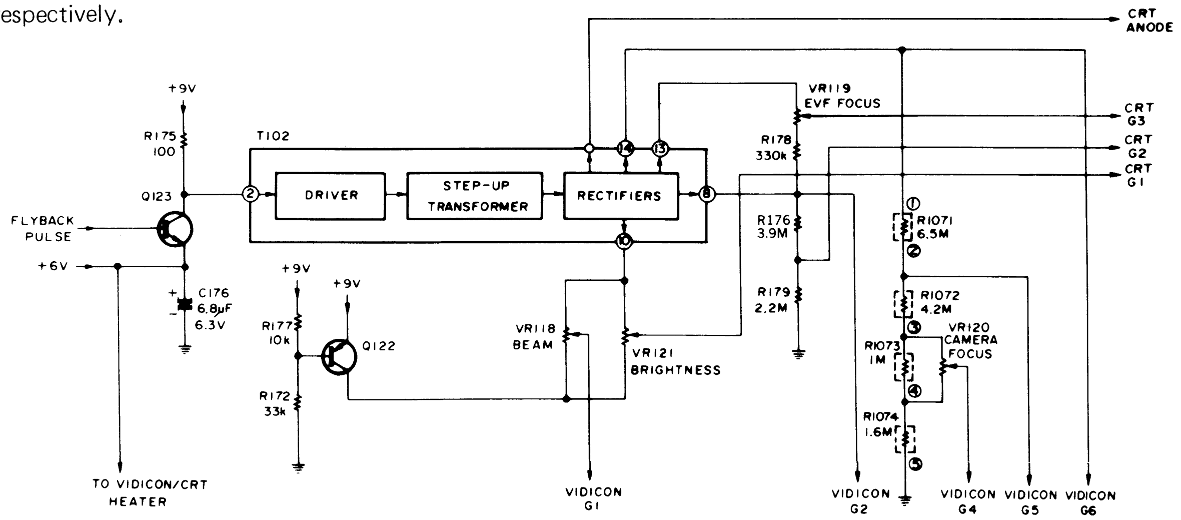

CRT ANODE
+9V
VR119
EVF FOCUS
CRT G3
CRT G2
CRT G1
R175
100
T102
R178
330k
Q123
DRIVER
STEP-UP TRANSFORMER
RECTIFIERS
FLYBACK PULSE
R176
3.9M
R1071
6.5M
+6V
+9V
+9V
C176
6.8μF
6.3V
R179
2.2M
R1072
4.2M
VR120
CAMERA FOCUS
R177
10k
Q122
VR118
BEAM
VR121
BRIGHTNESS
R1073
1M
R172
33k
R1074
1.6M
TO VIDICON/CRT HEATER
VIDICON G1
VIDICON G2
VIDICON G4
VIDICON G5
VIDICON G6

Fig. 3-18 High Voltage Circuit

3-19. Target Protection/Playback Detect Circuit

• Target Protection Circuit

Outline

If no deflection current flows to the vidicon deflection coil because of a horizontal(H) or vertical(V) deflection circuit failure, the scanning process would stop, and the vidicon electron beam would remain stationary.

Should this happen, the photoconductive layer of the vidicon would be burned in one spot, making the vidicon unusable.

The vidicon target protection circuit protects the photoconductive layer from burn-out in the event of a deflection circuit failure by stopping the generation of high voltages supplied to the vidicon grids and thus cutting off the electron beam.

Details

The V. sawtooth signal which is made from the V.deflection sawtooth signal in the V.sawtooth/parabola generator circuit is fed to switcher Q114. The DC voltage at the junction point of R1081 and R1082 is applied to the base of another switcher Q118. The DC voltage at the junction point of VR109 (H.SIZE) and R128 in the camera horizontal deflection circuit is supplied to the emitter of Q118.

Under normal conditions, the emitter of Q118 is biased approximately 1.6V, and the base of Q118 approximately 1.5V since playback detector Q113 and Q114 are turned ON. In this case, Q118 is turned OFF and the H.oscillator inside IC108 operates normally. Thus the H.flyback pulse is sent to the high voltage circuit generating the high voltages.

If the V.deflection circuit fails, the V.sawtooth signal is not applied to the base of Q114, turning OFF Q114, biasing the base of Q118 approximately 3.3V and switching ON Q118. As a result, the H.oscillator stops its oscillation.

If the Hs pulse is not supplied to the H.deflection circuit, the H.deflection circuit fails or the coil assembly is disconnected, the emitter potential of Q118 is lowered turning it ON. The H.oscillator thus stops its oscillation.

• Playback Detect Circuit

Outline

When the portable VCR is set to the playback mode, most of circuits in the Process circuit board are shut off by the playback sense circuit in the Process circuit board. As a result, no Hs and Vs pulses are supplied to the deflection circuit.

This circuit makes the high voltage circuit into operating condition for observing the playback picture on the viewfinder screen when the portable VCR is set to the playback mode.

Details

In the playback mode of portable VCR, +3.3V is not generated in the Process circuit board as well as +9V, the Hs pulse and the Vs pulse. Therefore, playback detector Q113 is turned OFF and the potential of Q118 base is lowered to turn it OFF. As a result, the high voltages for the cathode ray tube(CRT) are generated.

Though the high voltages for the vidicon are also generated at the same time while no deflection signals are generated.

The vidicon is protected from burn-out by following operation.

When the Vs pulse is not applied to the V.deflection circuit, the potential at pin 1 of IC105 in the V.deflection circuit becomes extremely high or low, even though the V.sawtooth signal is not produced. Therefore, the electron beam is aimed outside of the photoconductive layer in the vidicon. In this way, vidicon is protected.

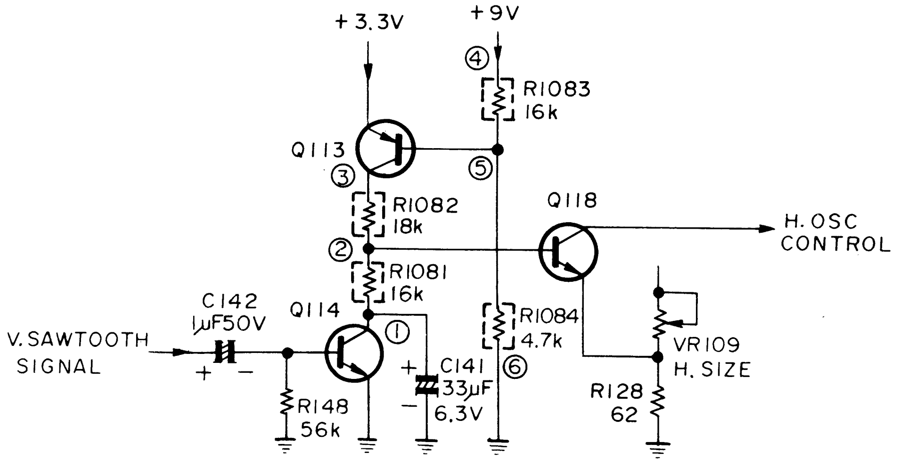


Fig. 3-19 Target Protection/Playback Detect Circuit

3-20. White Balance Indicator Circuit

Outline

When the camera is pointed at a white object and the white balance switch on the side of the camera is set to the CHECK position, the horizontal white balance indicator bar appears on the cathode ray tube (CRT).

The vertical position of horizontal white bar on the CRT indicates the condition of white balance. When white balance is set properly, the horizontal white bar falls to the lowest point on the CRT.

Details

In the Process circuit board, the chrominance signal is rectified and converted into a DC voltage which indicates the amount of unbalance.
When the white balance switch on the side of the camera is set to the CHECK position, this DC voltage is fed to pin 3 of comparator IC109(1/2) through terminal No. 11 of BI102. The vertical(V) sawtooth signal Ⓐ is supplied to pin 2 of IC109 from the V.sawtooth / parabola generator circuit.
The DC voltage and the V.sawtooth signal are compared in IC109, and V.pulse Ⓑ whose width is controlled by the DC voltage is generated at pin 1 of IC109.
The V.pulse Ⓑ is then applied to pin 6 of switching amplifier IC109(1/2) through the differentiator consisting of C172 and R1063 in block resistor BR106(Ⓒ). The V.pulse Ⓓ whose phase is controlled by the DC voltage is obtained at pin 7 of IC109 as a white balance indicator signal.

This signal is mixed with the video signal through R187 and supplied to the cathode ray tube (CRT).
When the white balance switch is set to the upper (normal) position, the low potential is supplied to pin 3 of IC109, and no V.pulse is generated. Therefore, the white bar disappears from the CRT screen.

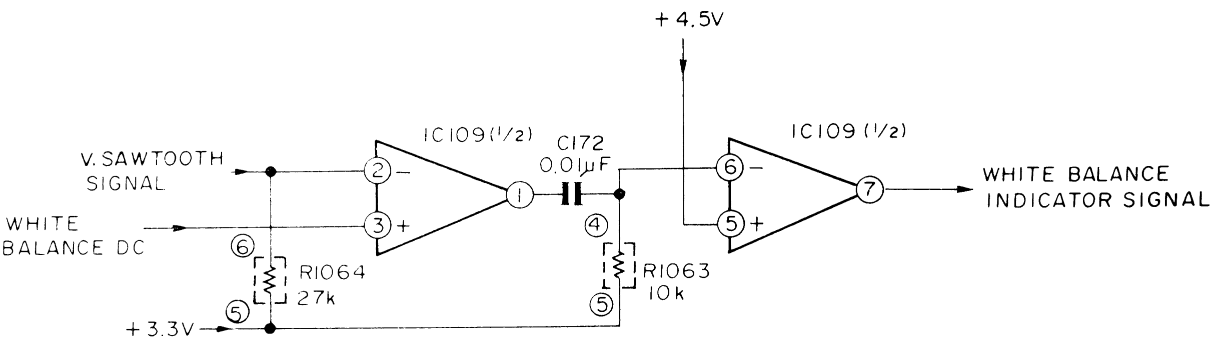

+4.5V
V. SAWTOOTH SIGNAL
WHITE BALANCE DC
IC109(1/2)
C172 0.01μF
IC109(1/2)
WHITE BALANCE INDICATOR SIGNAL
② −
③ +
①
④
⑥
⑤ +
⑦
⑥
⑤
⑤
R1064 27k
R1063 10k
+3.3V

Fig. 3-20-1 White Balance Indicator Circuit

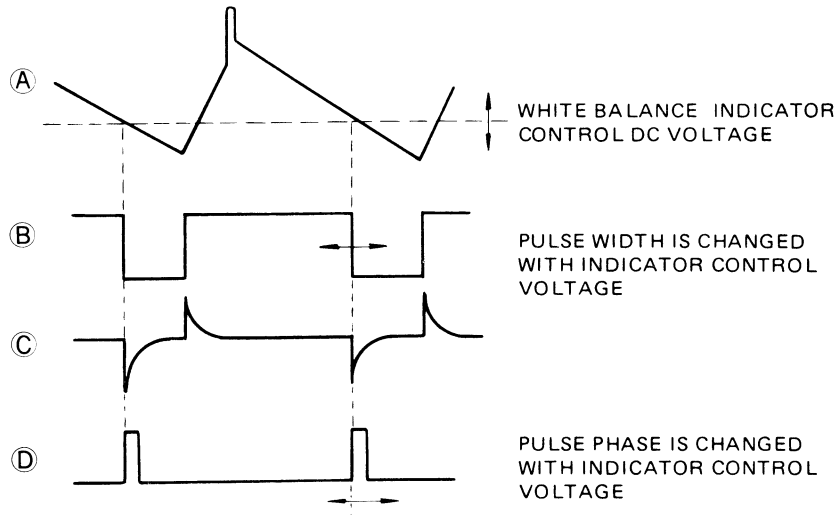

Ⓐ
WHITE BALANCE INDICATOR CONTROL DC VOLTAGE
Ⓑ
PULSE WIDTH IS CHANGED WITH INDICATOR CONTROL VOLTAGE
Ⓒ
Ⓓ
PULSE PHASE IS CHANGED WITH INDICATOR CONTROL VOLTAGE

Fig. 3-20-2 White Balance Indicator Signal

4. Sync Circuit board (YWV3000EZK3)

Outline

This circuit board generates PAL sync pulses and sends them to the Process circuit board.

Details

A 17.7MHz frequency oscillated by the crystal oscillator consisting of X301, VC301 (4.43 MHz ADJ), C308, C309 and R302 is phase-compared in IC301 with the frequency fx generated by the voltage controlled oscillator (VCO), which is composed of R3021, T301 (VCO VOLTAGE ADJ), C301, C302, D301 and D302 and connected to pins 3 and 4 of IC301. The phase detected output is sent from pin 5 of IC301 to variable capacitance diodes D301 and D302 in VCO to drive them and control the VCO frequency.

This phase lock loop circuit always keeps interleaving relationship among subcarrier, horizontal and vertical frequency generated by IC301.

The following signals/pulses are generated from IC301 and sent to the Process circuit board through CN203.

Pin 8 : PRE BL	(Preblanking pulse)
Pin 9 : Hs	(Horizontal scanning start pulse)
Pin 10 : BL	(Composite blanking pulse)
Pin 11 : BFP	(Burst flag pulse)
Pin 18 : D. HD	(Delayed horizontal drive pulse)
Pin 19 : Vs	(Vertical scanning start pulse)
Pin 21 : SYNC	(Composite sync pulse)
Pin 26 : (R-Y)SC	(Subcarrier for R-Y modulation)
Pin 27 : (B-Y)SC	(Subcarrier for B-Y modulation)

The relative timing information for each pulse is shown in Fig. 4-1.

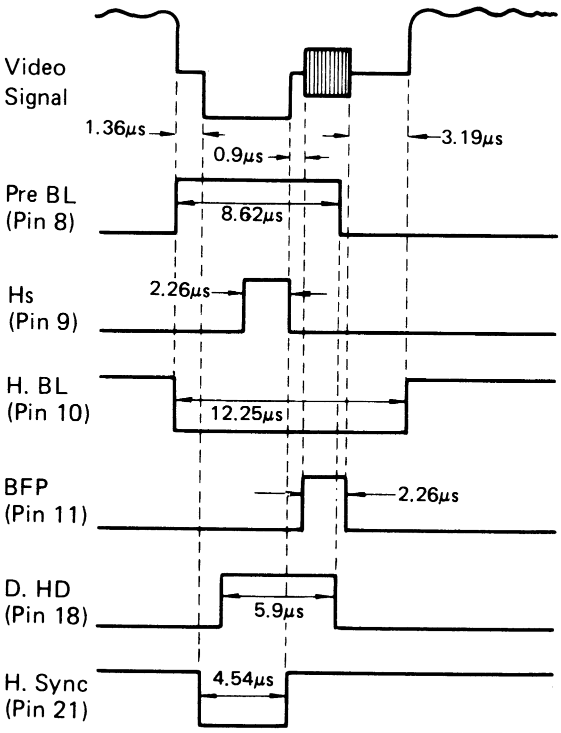

Video Signal
1.36μs
0.9μs
3.19μs
Pre BL (Pin 8)
8.62μs
Hs (Pin 9)
2.26μs
H. BL (Pin 10)
12.25μs
BFP (Pin 11)
2.26μs
D. HD (Pin 18)
5.9μs
H. Sync (Pin 21)
4.54μs

Fig. 4-1 Pulses

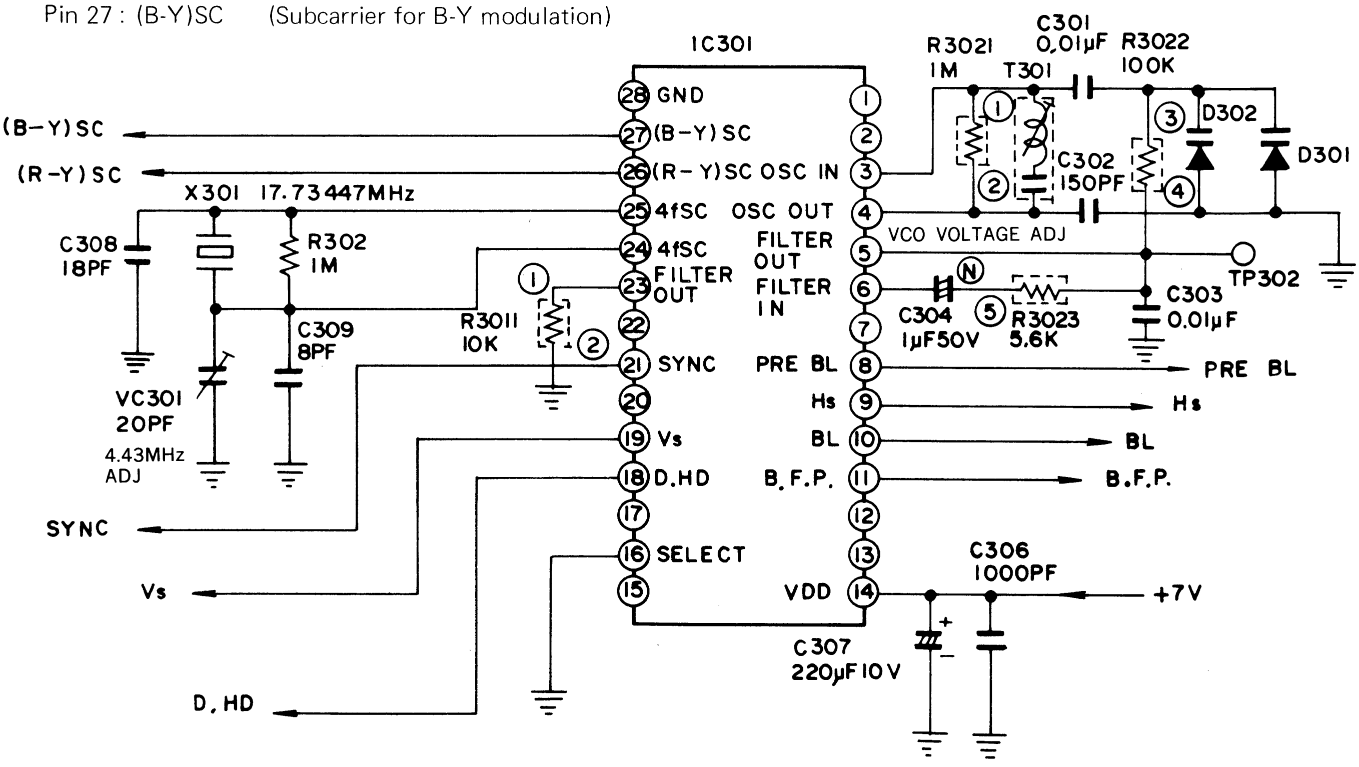

IC301
28 GND
27 (B-Y) SC
26 (R-Y) SC
25 4fSC
24 4fSC
23 FILTER OUT
22
21 SYNC
20
19 Vs
18 D.HD
17
16 SELECT
15
1
2
3 OSC IN
4 OSC OUT
5 FILTER OUT
6 FILTER IN
7
8 PRE BL
9 Hs
10 BL
11 B.F.P.
12
13
14 VDD
(B-Y) SC
(R-Y) SC
X301 17.73447MHz
C308 18PF
R302 1M
C309 8PF
VC301 20PF
4.43MHz ADJ
R3011 10K
①
②
SYNC
Vs
D.HD
R3021 1M
T301
C301 0.01μF
R3022 100K
①
②
③
④
C302 150PF
D302
D301
VCO VOLTAGE ADJ
Ⓝ
⑤
C304 1μF50V
R3023 5.6K
C303 0.01μF
TP302
PRE BL
Hs
BL
B.F.P.
C306 1000PF
+7V
C307 220μF10V

Fig. 4-2 Sync Generator

5. Process Circuit Board (YWV3000EZK2)

The Process Circuit Board (YWV3000EZK2) contains following circuits.

PAGE
5-1 Pulse Distribution Circuit 24
5-2 AGC/Tracking Signal Generator Circuit 25
  5-2-1 Automatic Gain Control (AGC) Circuit 25
  5-2-2 Tracking Signal Generator Circuit 27
5-3 Luminance Signal Processing Circuit 28
  5-3-1 Optical Black Clamp Circuit 28
  5-3-2 Y_H Signal Circuit 29
  5-3-3 Y_L Signal Circuit 31
  5-3-4 Y(edge) Signal Circuit 31
5-4 Automatic Iris Control (AIC) Circuit 31
5-5 AIC Start Delay Circuit 32
5-6 Horizontal Aperture Signal Generator Circuit 33
5-7 Vertical Edge Signal Generator Circuit 34
5-8 Red and Blue Separation & Chroma Processing Circuit 35
  5-8-1 Red and Blue Separation Circuit 35
  5-8-2 Vertical Transient Spurious Correction Circuit 37
  5-8-3 Shading Correction Circuit 38
  5-8-4 Tracking Correction Circuit 39
  5-8-5 Red Signal Detection Circuit 40
  5-8-6 Blue Signal Detection Circuit 41
5-9 Chrominance Encoding Circuit 41
  5-9-1 Color Reproduction Correction Circuit 41
  5-9-2 Gamma Correction Circuit 42
  5-9-3 Chrominance Signal Generator Circuit 42
  5-9-4 Chroma Clip/Suppression Circuit 42
5-10 White Balance Detection Circuit 43
5-11 PAL Signal Processing Circuit 44
5-12 Playback Sense Circuit 45

5-1. Pulse Distribution Circuit

Outline

This circuit receives the signals/pulses from the Sync circuit board and sends to other circuits after processing them.

Details

Approx. +7V is generated by regulating the +8.8V using zener diode D12 and diodes D13 and D14 in IC211. The +7V is used in IC211 and fed to the Sync circuit board through CN203 as a power source. Approx. +5V is obtained by regulating the +7V by Q19 in IC211 and D202 and supplied to IC207 and IC212 as a power source.

The delayed horizontal drive (D.HD) pulse Ⓐ and the sync pulse Ⓑ supplied through terminals No. 7 and No. 5 of CN203 are fed to pins 11 and 12 of NOR gates IC207 respectively. The clamp pulse (CP) Ⓒ obtained at pin 13 of IC207 is then mixed with the preblanking (pre BL) pulse Ⓓ (supplied through terminal No. 3 of CN203) through R2205/R2204 and R2206/R2207. The multiplexed signals Ⓔ are then fed to other circuits. The pre BL pulse Ⓓ is also supplied to other circuits through R2208.

The horizontal scanning start (Hs) pulse Ⓕ supplied through terminal No. 2 of CN203 is fed to other circuit through buffer Q15/Q16 in IC211. The multiplexed signal Ⓗ which is made by mixing the Hs pulse Ⓕ and the blanking (BL) pulse Ⓖ (supplied through terminal No. 4 of CN203 and inverter Q17 in IC211) through R2215 and R2214 is fed to other circuits.

The vertical scanning start (Vs) pulse supplied through terminal No. 1 of CN203 is sent to other circuit through inverter Q14 in IC210.

The subcarrier (R-Y)SC is fed through terminal No. 9 of CN203 and pin 14 of IC205 to R-Y_L balance modulator. The subcarrier (B-Y)SC is supplied to B-Y_L balance modulator in IC205 through terminal No. 10 of CN203, IC211, IC207 and pin 16 of IC205. The (B-Y)SC is also fed to vertical edge signal generator circuit through R2201.

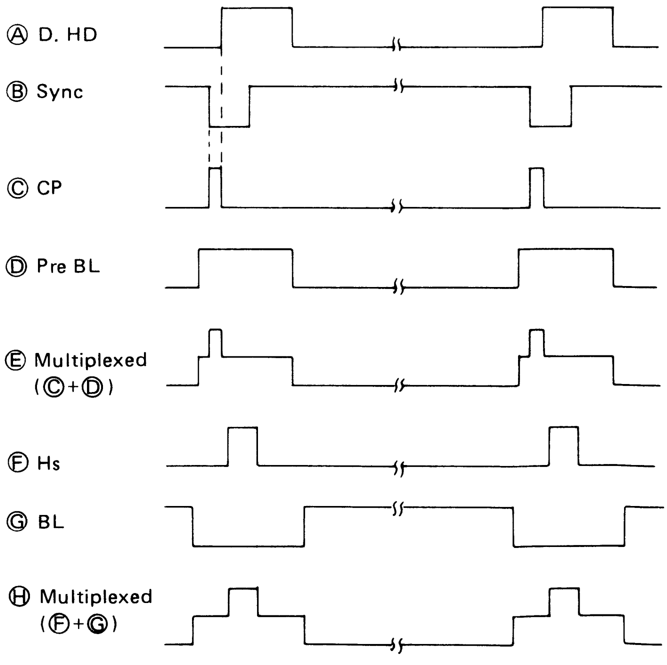


Fig. 5-1-1 Multiplexed Pulse

The (R-Y)SC and (B-Y)SC signals Ⓘ supplied to pins 2 and 6 of IC207 are gated by the burst flag pulse (BFP) Ⓙ fed to pins 3 and 5 of IC207 through inverter Q18 in IC211. The gated SC signals Ⓚ are then mixed through R2223 and R2224, and supplied via buffer Q21 in IC212 to band pass filter consisting of L212, L213, C257 and C16 in IC212. The burst signal Ⓛ obtained by removing the low frequency components from the gated SC signals Ⓚ with the band pass filter is then sent to phase shifter Q20 in IC212. The phase-shifted burst signal at the junction point of VC202 (BURST PHASE) and R243 is then mixed with the sync pulse Ⓜ through R2212 and R2213. The mixed signal Ⓝ is supplied to the burst/sync mix inside IC203 through pin 7.

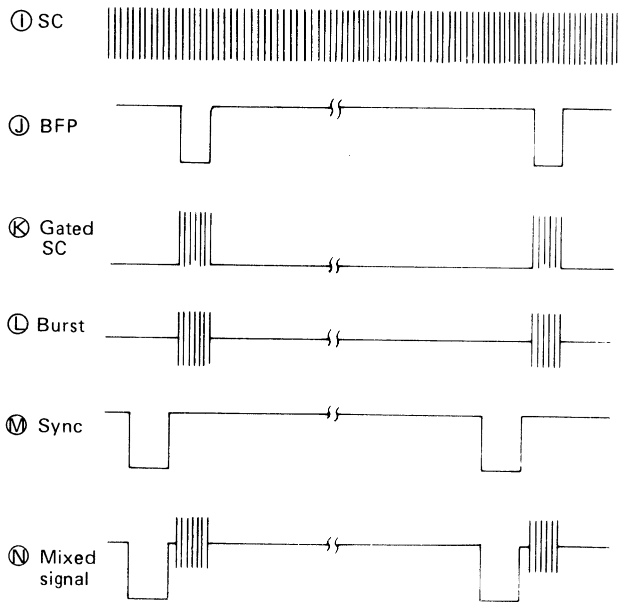

Ⓘ SC
Ⓙ BFP
Ⓚ Gated SC
Ⓛ Burst
Ⓜ Sync
Ⓝ Mixed signal

Fig. 5-1-2 Burst/Sync Signal

5-2. AGC/Tracking Signal Generator Circuit

5-2-1. Automatic Gain Control (AGC) Circuit

Outline

This circuit amplifies the preamplifier output signal. The amplified signal level is maintained constant by automatically controlling the gain of the amplifier. The automatic gain control (AGC) circuit starts to operate only when the lens iris is fully opened.

Details

The output signal of the Preamplifier circuit board (YWCC005ZK05) goes to terminal No. 1 of CN206. After its level is set by VR201 (INPUT GAIN), it goes to the amplifier inside IC201 through pin 2. The amplified pre-video signal from the amplifier is mixed with the modulated preblanking (Pre BL) pulse for the optical black (OB) correction. Z203 is a 4.43MHz trap which removes the subcarrier component.

- **Optical black (OB) correction**

The pick-up tube sends out current corresponding to the incoming light intensity, but even when no light whatsoever reaches the target, an output current called dark current exists. The dark current of the vidicon is relatively large and varies depending upon the temperature of the vidicon. In a TV camera using a vidicon, the black level of the output signal is generally unstable due to temperature variations.

Accordingly, this color camera uses a metallic strip (optical black) in front of the vidicon photoconductive layer to cut off the incoming light at the end of the horizontal scanning period. The optical black causes only the dark current to be detected which is clamped at a specific potential to suppress black level variations. (Refer to Optical black clamp circuit on page 28.)

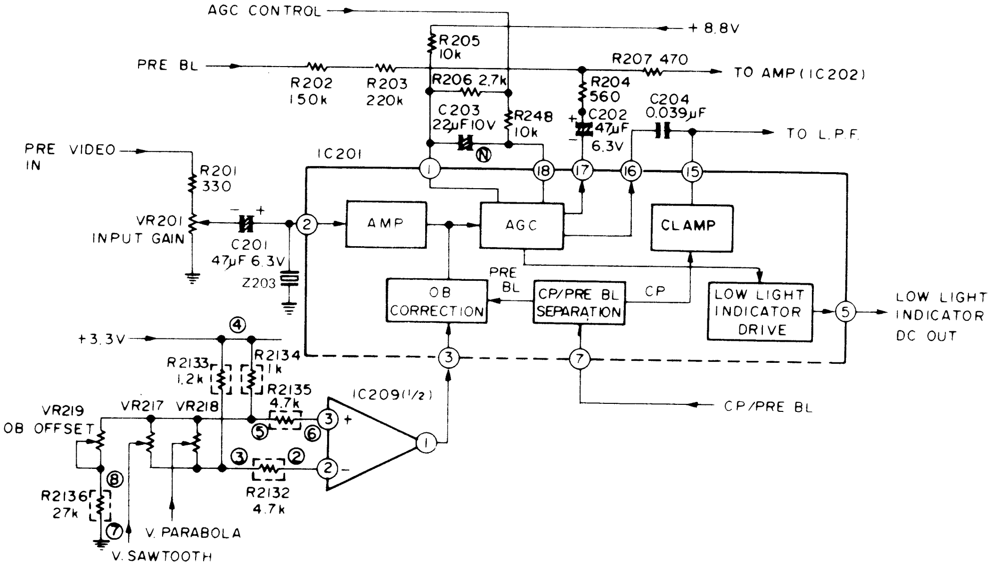

AGC CONTROL
+8.8V
PRE BL
R202 150k
R203 220k
R205 10k
R206 2.7k
C203 22μF 10V
R248 10k
R207 470
R204 560
C202 47μF 6.3V
C204 0.039μF
TO AMP (IC202)
TO L.P.F.
PRE VIDEO IN
R201 330
IC201
VR201 INPUT GAIN
C201 47μF 6.3V
Z203
AMP
AGC
CLAMP
PRE BL
OB CORRECTION
CP/PRE BL SEPARATION
CP
LOW LIGHT INDICATOR DRIVE
LOW LIGHT INDICATOR DC OUT
+3.3V
R2133 1.2k
R2134 1k
R2135 4.7k
IC209(1/2)
VR219 OB OFFSET
VR217
VR218
R2132 4.7k
R2136 27k
V. PARABOLA
V. SAWTOOTH
CP/PRE BL

Fig. 5-2-1 OB Correction/AGC Circuit

There is a level difference between the dark current detected from the optical black region and the actual dark current from active area of the tube. The pre BL pulse is mixed to correct the difference. In the pre-video signal, there is a dark shading difference between the dark current from the OB region and from active area of tube in vertical (V) rate. The modulated pre BL pulse is mixed with the pre-video signal to match the V.dark shading corresponding to the OB region to that corresponding to the active area of tube.

The vertical (V) sawtooth Ⓐ and parabola Ⓑ signals from the Deflection circuit board are fed to the wiper arm of VR217 (OB CORRECTION-SAW.) and VR218 (OB CORRECTION-PARA.) respectively. These waveforms are applied to both the non-inverted (pin 3) and inverted (pin 2) inputs of IC209 (1/2), where they are amplified. The output of IC209 (1/2) at pin 1 produces a positive or negative mixed signal Ⓒ of V.sawtooth and parabola signals depending on the position of these controls. The signal Ⓒ is then fed to the OB correction circuit inside IC201 through pin 3.

VR219 (OB OFFSET) controls the positive input potential of IC209 to change the output DC level.

The multiplexed signal of the clamp pulse (CP) and pre BL pulse is fed from the pulse distribution circuit to the CP/Pre BL separator inside IC201 through pin 7, where the CP and Pre BL pulse are separated. The separated pre BL pulse is fed to the OB correction circuit inside IC201. The amplified pre-video signal Ⓓ is then modulated by the mixed signal Ⓒ and pre BL signal for correcting the difference of dark current level and matching the dark current shading Ⓕ.

VR217 and VR218 are controls for matching the dark current shading and VR219 is for correcting the difference of dark current level.

The corrected pre-video signal is then fed to the automatic gain control (AGC) circuit inside IC201.

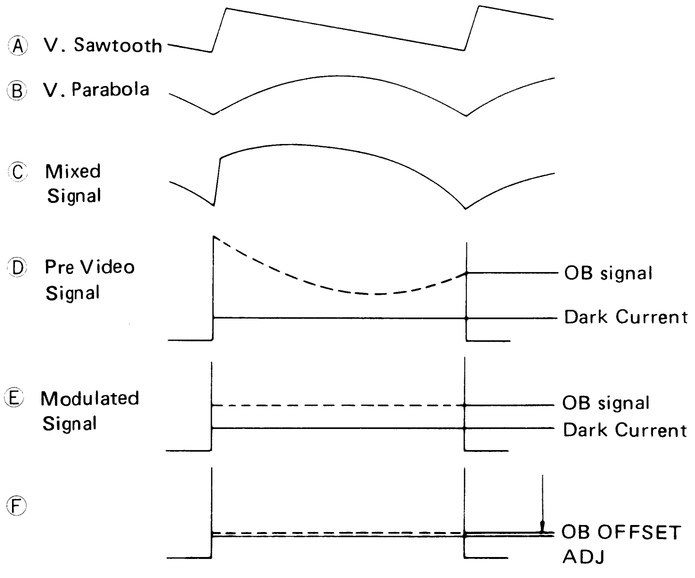


Fig. 5-2-2 OB Correction

• Automatic gain control (AGC) circuit

The DC voltage which supplied from the AIC driver inside IC202 to automatic iris control (AIC) lens to control its iris opening is also supplied to the AGC amplifier inside IC201 through pin 18 of IC201.

In order to open the iris, the iris control voltage must be increased.

When the AIC lens works properly, the relatively low DC voltage is supplied to the AGC amplifier from the AIC driver and AGC amplifier becomes fixed gain amplifier. The amplified signal is fed through pin 17 of IC201 and pin 18 of IC202 to the 14dB amplifier inside IC202.

When the camera is pointed at a weakly illuminated scene, the iris control voltage is increased to open the lens iris. However, the lens iris becomes fully open at a certain iris control voltage and cannot be opened any more even when the DC voltage is increased. When the lens iris is wide open by the increased DC voltage, the AGC amplifier assumes a differential amplifier configuration whose gain is automatically controlled by the DC voltage supplied through pin 18 to keep the signal level constant.

In this way, the signal level corresponding to normal and relatively high illumination is kept constant by the lens iris opening while the signal level corresponding to relatively low illumination is controlled by the AGC circuit.

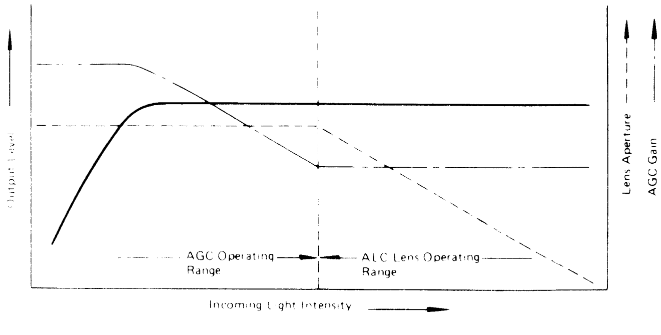


Fig. 5-2-3 AGC Operation

The amplified pre-video signal from the AGC amplifier is also fed to the tracking signal generator circuit through pin 16 of IC201.

The DC voltage is fed from the AGC amplifier to the Deflection circuit board through the low light indicator driver and pin 5 of IC201 to drive the low light indicator in the viewfinder. When the camera is aimed at the weakly illuminated scene, the DC voltage from the low light indicator driver is decreased.

5-2-2. Tracking Signal Generator Circuit

Outline

The photoelectric conversion characteristic of the vidicon is not linear. The relatively high level of video signal from the vidicon undergoes greater suppression than that corresponding to dark picture part. (Fig. 5-2-4).

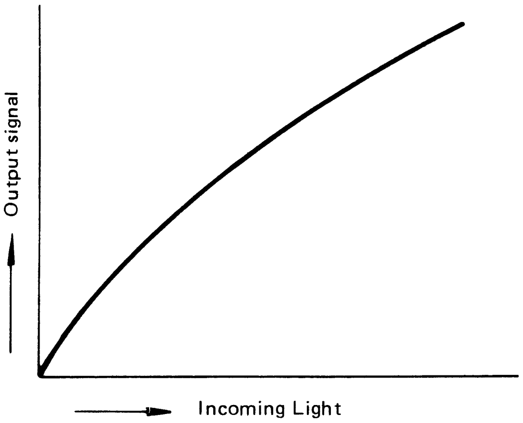


Fig. 5-2-4 Vidicon's Gamma Characteristic-1

In this color camera, the red(R) and blue(B) signals modulated at 3.58MHz are riding on top of the green(G) signal when they are extracted from the vidicon. So, signal's high level Ⓐ i.e., the modulated R and B component, is suppressed.

Therefore, the relatively high level of the modulated R(Rc) and modulated B(Bc) signals Ⓑ are also suppressed. (Fig. 5-2-5).

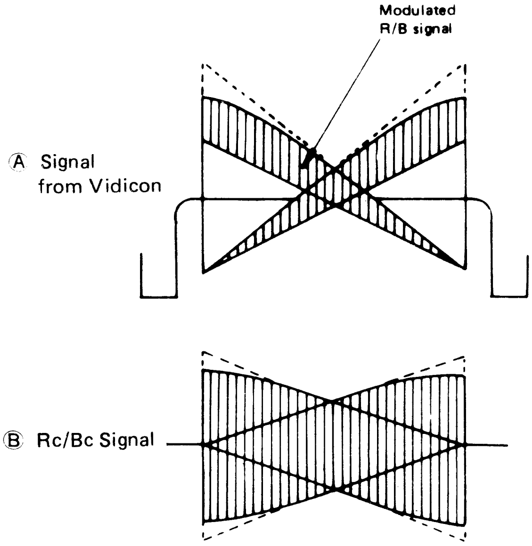


Fig. 5-2-5 Vidicon's Gamma Characteristic-2

As a result, the R and B signals obtained by detecting the Rc and Bc signals are suppressed more than Y_L signal obtained by removing the 3.58MHz modulated component. (The gamma characteristic of the R and B signals differ from that of Y_L signal).

The modulation depth of Rc and Bc signals corresponding to the weakly illuminated scene is reduced due to the over-beam in the pick-up tube. As a result, the low level portion of R and B signals may not match that of Y_L signal.

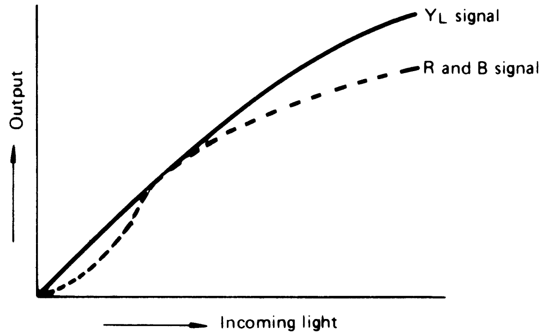


Fig. 5-2-6 Vidicon's Gamma Characteristic-3

The circuit generates the tracking signals for correcting the gamma characteristic of the R and B signals, and matching them with the Y_L signal.

Details

The amplified pre-video signal Ⓒ (which contains the modulated red and blue signals as well as the green signal) obtained at pin 16 of IC201 is fed to the clamp circuit inside IC201. The blanking period of signal Ⓒ is clamped by the clamp pulse (CP) supplied from the CP/Pre BL separator inside IC201.

The clamped signal is then supplied to the low pass filter LC201 where the 3.58MHz modulated component is removed and a luminance (Y) signal Ⓓ is made.

The Y signal Ⓓ is fed through pin 14 to the tracking-1 and 2 signal generator inside IC201 where a tracking-1 signal Ⓔ and a tracking-2 signal Ⓕ are generated respectively.

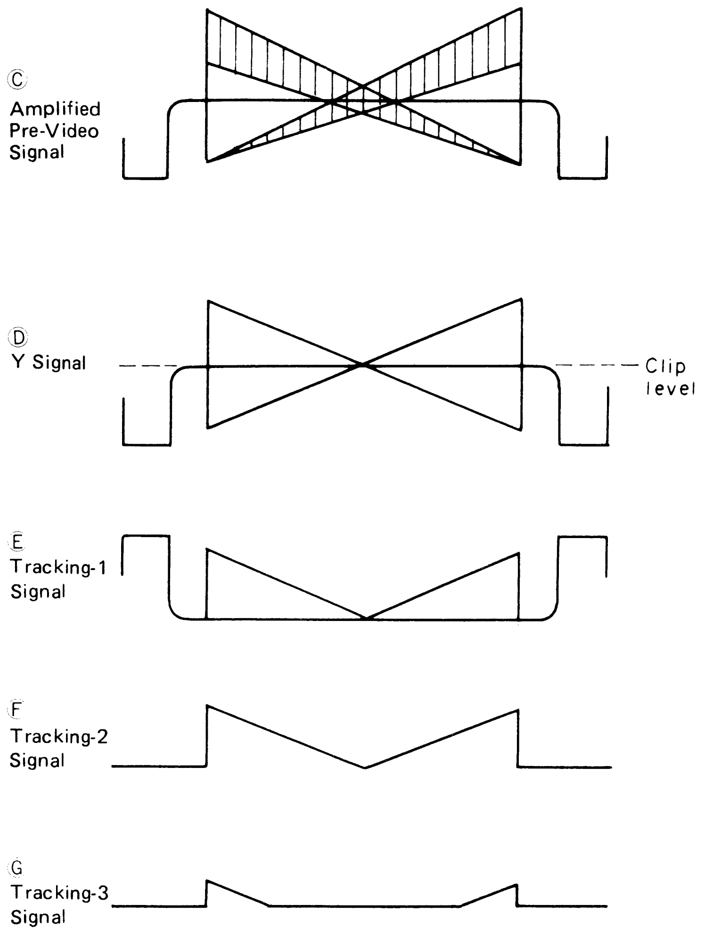
The tracking-1 signal Ⓔ at pin 9 of IC201 is supplied to VR213 (R. TRACKING-1) and VR228 (B. TRACKING-1) for correcting the relatively low level of R and B signals.

The tracking-2 signal Ⓕ at pin 8 of IC201 is fed to VR212 (R. TRACKING-2) and VR227 (B. TRACKING-2) for correcting the relatively higher portion of R and B signals.

The Y signal Ⓓ is also applied to the tracking-3 signal generator inside IC201 through pin 13. The tracking-3 signal Ⓖ at pin 11 of IC201 is fed to VR214 (R. TRACKING-3) and VR229 (B. TRACKING-3) for the high level of R and B signals.

The tracking-3 signal is also fed to the high Y level chroma clip circuit through LC206 which delays the tracking-3 signal to match the chrominance signal in phase.

The DC voltage which is set by VR202 (TRACKING-3 SET) and supplied to the tracking-3 signal generator through pin 12 determines the clip level for the tracking-3 signal.



Ⓒ Amplified Pre-Video Signal
Ⓓ Y Signal
Clip level
Ⓔ Tracking-1 Signal
Ⓕ Tracking-2 Signal
Ⓖ Tracking-3 Signal

Fig. 5-2-7 Tracking Signals

5-3. Luminance Signal Processing Circuit

This circuit contains the optical black clamp circuit, Y_H signal circuit, Y_L signal circuit and Y (edge) signal circuit.

5-3-1. Optical Black Clamp Circuit

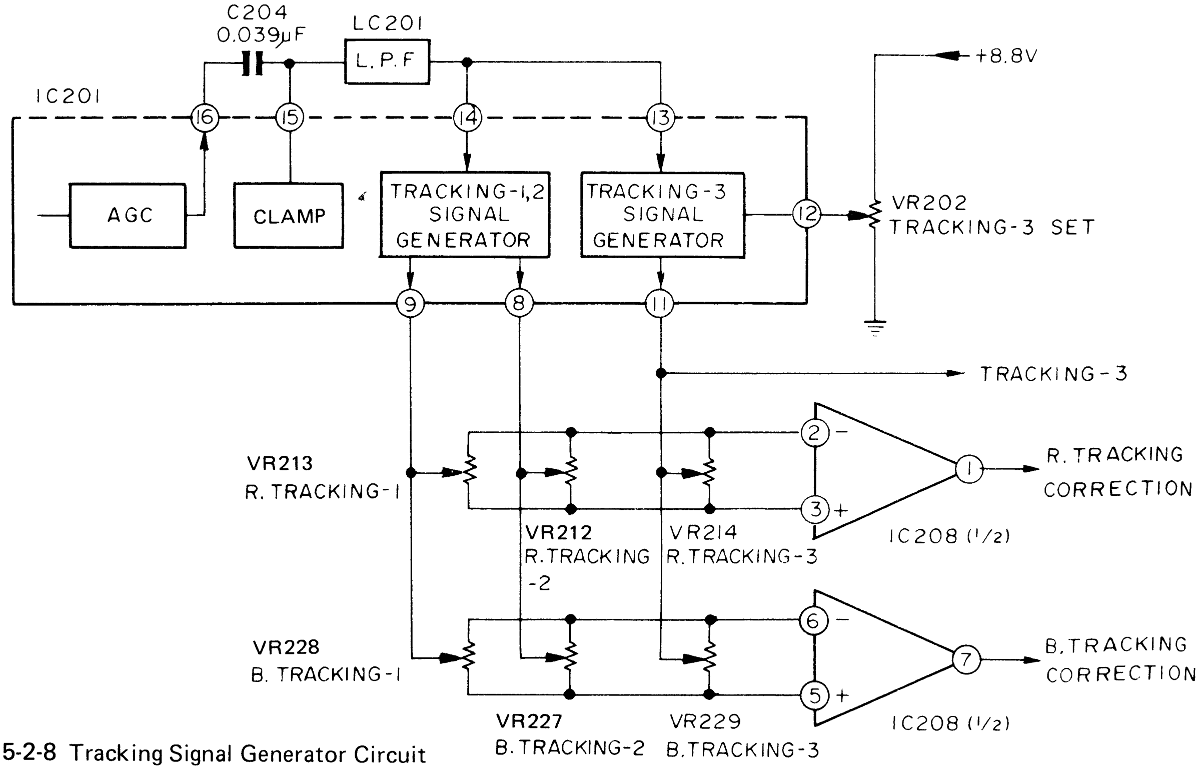
Outline

The pick-up tube sends an output current corresponding to the incoming light intensity, but even when no light reaches the target, an output current called dark current is obtained. The dark current of the vidicon is relatively large and varies with the temperature of the vidicon. In a TV camera using a vidicon, the dark level of the output signal is extremely unstable with respect to changing temperature.

In a color camera using the single carrier frequency multiplexing system, the red(R) and blue(B) signals modulated at 3.58MHz are riding on top of the green(G) signal. Thus the black level of the R and B signals are free from temperature variations because they are independent of vidicon dark current.

However, the black level of the Y signal which is obtained by removing the modulated R and B components from the vidicon output increases or decreases according to temperature variations. Therefore, the black level balance between the Y_L and R signals, and between Y_L and B signals are lost due to a temperature variations and this causes a change in color reproduction.

This circuit receives the amplified pre-video signal from the AGC circuit and clamps its dark current level for correcting the black level variation.



C204
0.039μF
LC201
L.P.F
IC201
+8.8V
⑯
⑮
⑭
⑬
AGC
CLAMP
TRACKING-1,2 SIGNAL GENERATOR
TRACKING-3 SIGNAL GENERATOR
⑫
VR202
TRACKING-3 SET
⑨
⑧
⑪
TRACKING-3
VR213
R. TRACKING-1
②
③
①
R. TRACKING CORRECTION
VR212
R.TRACKING -2
VR214
R.TRACKING-3
IC208 (1/2)
VR228
B. TRACKING-1
⑥
⑤
⑦
B.TRACKING CORRECTION
VR227
B.TRACKING-2
VR229
B.TRACKING-3
IC208 (1/2)

Fig. 5-2-8 Tracking Signal Generator Circuit

Details

The amplified pre-video signal which contains the modulated red/blue signals and green signal is fed from the AGC amplifier inside IC201 to the 14dB amplifier through pin 17 of IC201 and pin 18 of IC202. The amplified signal is fed through pin 17 of IC202 and C207 to optical black (OB) clamp circuit inside IC202. A metallic strip (optical black) for cutting the incoming light at the end of the horizontal scanning period is built into the vidicon faceplate.

When the beam scans the optical black portion Ⓐ, the dark current of the vidicon is produced and this signal portion Ⓑ is clamped to a fixed DC potential, so that the black level variation due to a change of dark current is sensed.

In other words, the dark current level Ⓑ' of the amplified pre-video signal Ⓑ supplied to the clamp circuit inside IC202 is clamped by the clamp pulse (CP) Ⓒ' separated from the multiplexed signal of CP, pre BL and parabola signal, inside IC202. (The multiplexed signal of CP and pre BL pulses is generated in the pulse distribution circuit and mixed with the horizontal and vertical parabola signals supplied through D201.)
Therefore, even if the dark current level drift due to the temperature variations, the DC potential of the optical black (OB) level is held constant.
In this way, the black level variation is corrected.

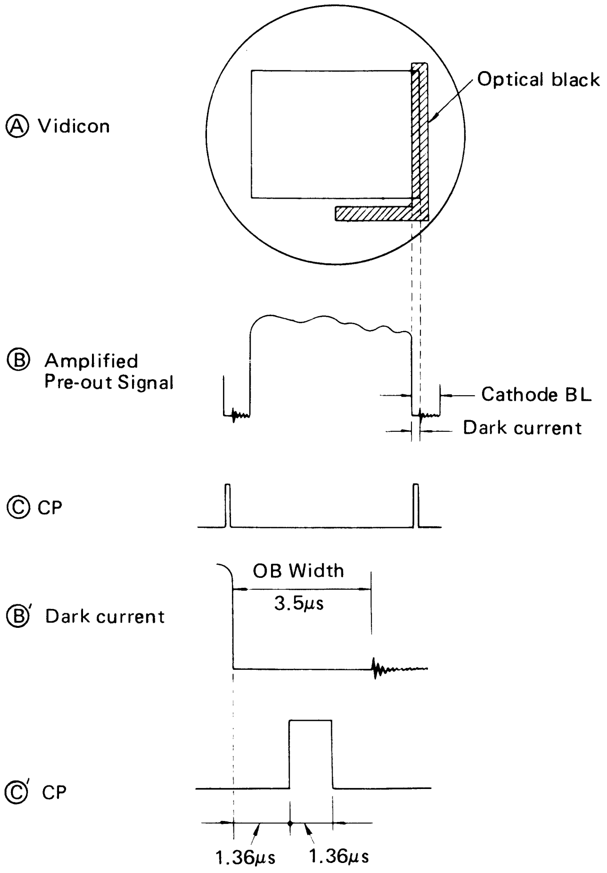

Ⓐ Vidicon
Optical black
Ⓑ Amplified Pre-out Signal
Cathode BL
Dark current
Ⓒ CP
Ⓑ' Dark current
OB Width
3.5μs
Ⓒ' CP
1.36μs
1.36μs

Fig. 5-3-2 OB Clamp

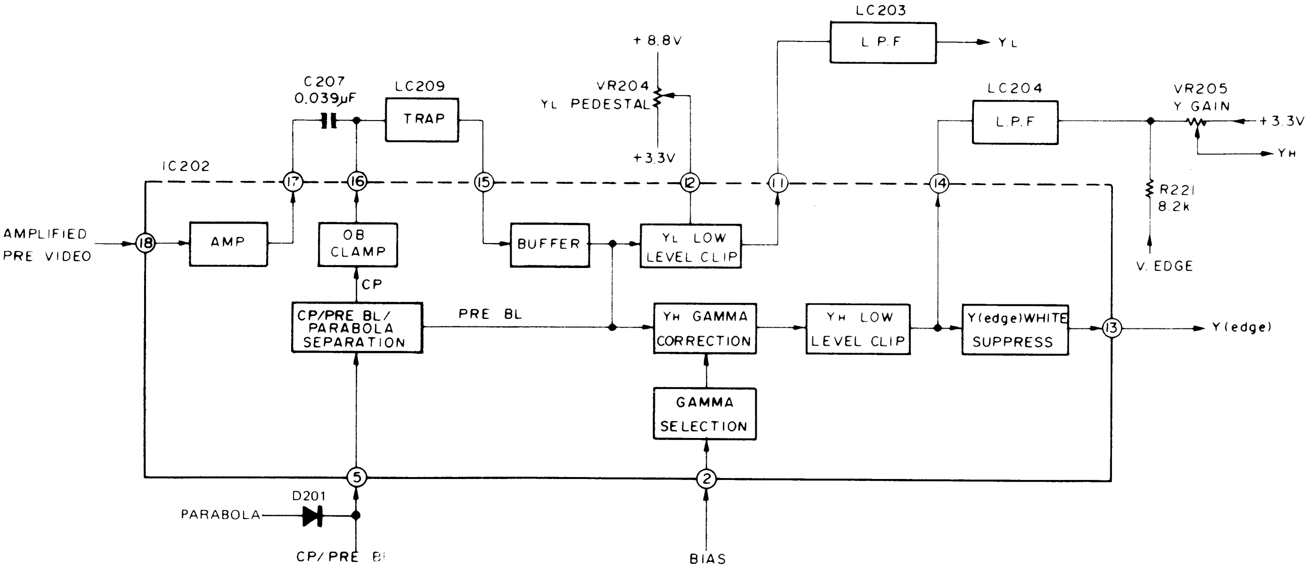

LC203
L.P.F
YL
+8.8V
VR204
YL PEDESTAL
+3.3V
C207
0.039μF
LC209
TRAP
LC204
L.P.F
VR205
Y GAIN
+3.3V
YH
IC202
17
16
15
12
11
14
R221
8.2k
AMPLIFIED PRE VIDEO
18
AMP
OB CLAMP
CP
BUFFER
YL LOW LEVEL CLIP
V. EDGE
CP/PRE BL/ PARABOLA SEPARATION
PRE BL
YH GAMMA CORRECTION
YH LOW LEVEL CLIP
Y(edge)WHITE SUPPRESS
13
Y(edge)
GAMMA SELECTION
5
2
D201
PARABOLA
CP/PRE B
BIAS

Fig. 5-3-1 Luminance Signal Processing Circuit

5-3-2. Y_H Signal Circuit

Outline

This circuit receives the luminance (Y) signal from the optical black clamp circuit and generates the luminance (Y_H) signal having high frequency response characteristic.

Details

The Y signal undergoes the optical black clamp is fed to trap LC209 which removes the 3.58MHz modulated component and the luminance (Y) signal is obtained. The Y signal is then applied to the buffer inside IC202 through pin 15. The Y signal Ⓓ from the buffer is mixed with the pre BL pulse Ⓔ from the CP/pre BL/Parabola separator and the Y signal Ⓕ is made.
The Y signal is then fed to the gamma correction circuit.

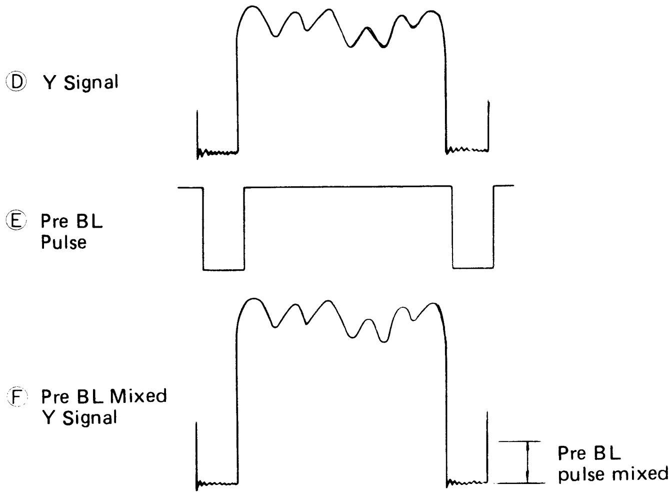


Fig. 5-3-3 Preblanking Mix

- Gamma correction circuit

Outline

This circuit matches the non-linearity of vidicon's photoelectric conversion characteristic to that of cathode ray tube (CRT) and reproduces a linear picture of high fidelity on the monitor.
In order for a televised picture to have the same contrast gradation as the original scene, the system (including the pick-up tube, signal processing inside camera and monitor, and CRT) gamma must be equal to 1.
The gamma characteristic of vidicon is approximately (approx.) 0.65 and the gamma characteristic of the monitor CRT is approx. 2.2, so that the gamma characteristic of the gamma correction circuit should be approx. 0.7, which makes the total gamma to be approx. 1.0 as shown in Fig. 5-3-4.

Details

The Y signal mixed with the pre BL pulse is fed to the gamma (γ) correction circuit and undergoes the gamma correction. The suppression level and the extent of suppression for the gamma correction are selected by the gamma select circuit inside IC202, which is controlled by the DC voltage at pin 2 of IC202.
The Y signal Ⓖ which undergoes the gamma correction is supplied to the low level clip circuit inside IC202, where the low level preblanking portion of the signal is clipped Ⓗ and its pedestal level is set.

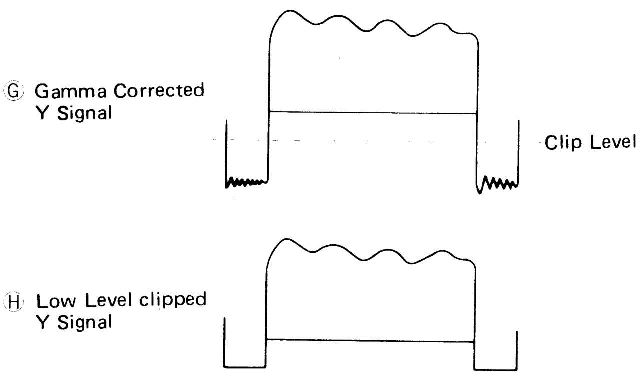


Fig. 5-3-5 Low Level Clip

The Y signal whose pedestal level is set is supplied to 2.8MHz low pass filter LC204, where the frequency response of Y signal is limited to 2.8MHz and its phase is delayed to match the chrominance signal, and the Y_H signal having high frequency response characteristic is generated.
The Y_H signal is then mixed with the vertical edge signal supplied from vertical edge signal generator circuit through R221.
After its level is set by VR205 (Y GAIN), the Y_H signal is supplied to the horizontal aperture signal circuit through the buffer connected between pin 16 and pin 17 of IC203.

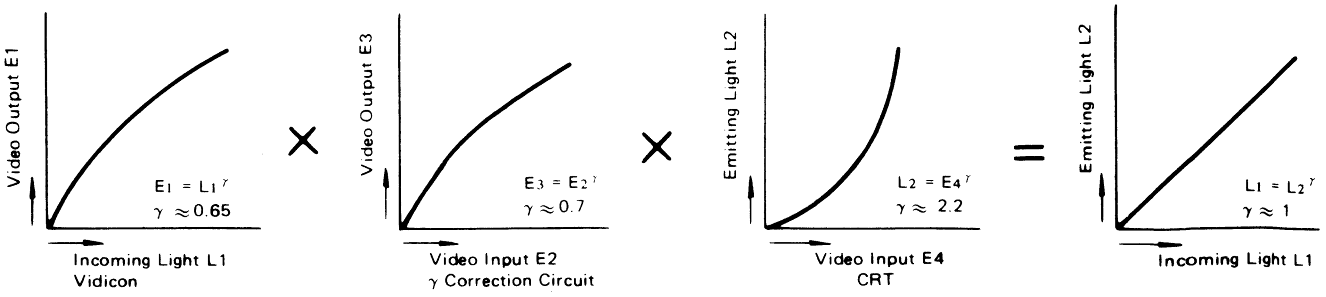


Fig. 5-3-4 Gamma Correction

5-3-3. Y_L Signal Circuit

Outline

This circuit receives the luminance (Y) signal from the Y signal circuit, and generates the luminance (Y_L) signal having low frequency response characteristic.

Details

The Y signal Ⓘ mixed with the preblanking (pre BL) pulse is fed to the low level clip circuit inside IC202, where the Y signal's low level preblanking portion is clipped and its pedestal level is set (Ⓙ). The clip level (pedestal level) is set by VR204 (Y_L PEDESTAL).

The Y signal Ⓙ whose pedestal level is set is fed through pin 11 of IC202 to the 0.5MHz low pass filter IC203, where the frequency response of Y signal is limited to 0.5MHz.

The Y signal whose bandwidth is 0.5MHz is supplied to buffer Q208 as a luminance (Y_L) signal having low frequency response characteristic.

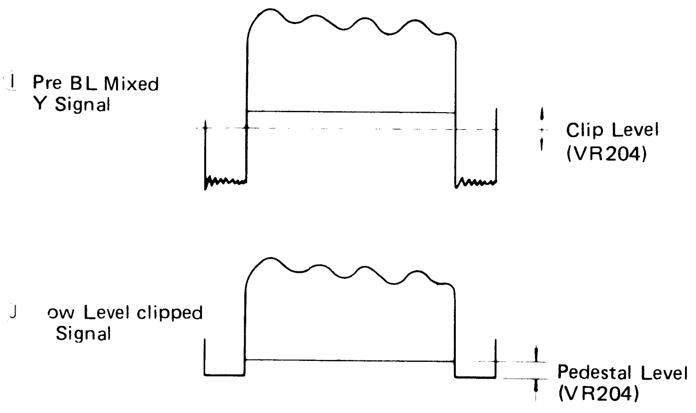


Fig. 5-3-6 Pedestal Level

5-3-4. Y(edge) Signal Circuit

Outline

This circuit generates the luminance [Y(edge)] signal for making the vertical edge signal.

Details

The Y signal whose pedestal is set by the Y_H low level clip circuit in IC202 is fed to the Y (edge) white suppress circuit inside IC202, where the high level of Y signal is suppressed and the luminance signal for making the vertical edge signal is obtained. This signal is fed through pin 13 of IC202 to the vertical edge signal generator circuit.

5-4. Automatic Iris Control(AIC) Circuit

Outline

This circuit controls the lens iris opening according to the incoming light intensity. This circuit generates the DC voltage corresponding to the light intensity and sends this DC voltage to the automatic iris control (AIC) lens to drive iris mechanism.

The lens iris is closed when the power is turned OFF for vidicon protection.

Details

The parabola signal Ⓐ separated from the CP/pre BL/parabola mixed signal is supplied to the modulator circuit inside IC202 from the CP/pre BL/parabola separator.

The Y signal Ⓑ whose pedestal level is set is fed from the Y_H low level clip circuit to the modulator circuit, where the Y signal is modulated by the parabola signal. To drive the lens iris by the signal corresponding to the center image, the Y signal Ⓑ is modulated by the parabola signal Ⓐ.

The modulated Y signal Ⓒ is peak-rectified in the modulator and converted into DC voltage corresponding to the Y signal level i.e., the incoming light intensity.

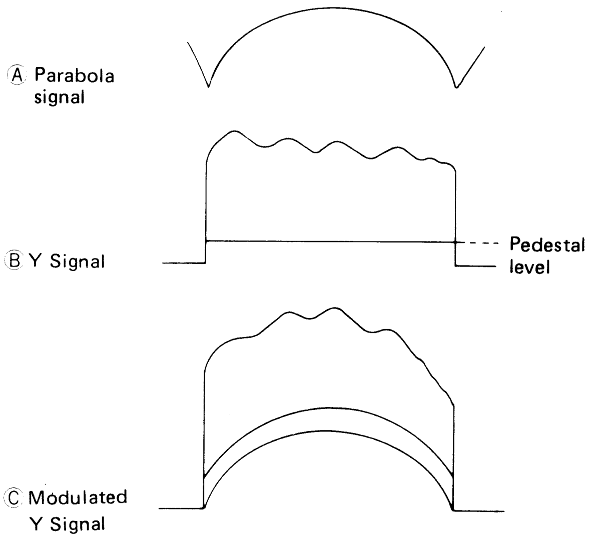


Fig. 5-4-1 Modulation Signal for AIC

This DC voltage is fed to the inverted input of DC amplifier, where it is amplified. The amplified DC voltage is then fed through pin 9 of IC202 and terminal No. 3 of CN204 to the AIC motor to drive it.

If the incoming light intensity goes down, the modulated Y signal level decreased so that the DC voltage which is obtained by rectifying the Y signal also goes down. When an decreasing DC voltage is applied to the inverted input of amplifier, the output from amplifier increases. This output is applied to motor to open the lens iris.

When the incoming light intensity increases, reverse operation takes place.
In this way, the incoming light to the pick-up tube and pre-amplifier output level are maintained constant.

When the incoming light intensity is extremely low, and the lens iris becomes wide open, the automatic gain control (AGC) circuit in IC201 starts to operate. (Refer to AGC circuit on page 25.)
When the light intensity changes and the iris control motor is operated, the electromotive force appears in the motor damper coil connected between terminal No. 2 of CN204. The DC current from the damper coil is negatively fed back to the inverted input of amplifier through terminal No. 2 of CN204, amplifier IC209 (1/2) and pin 8 of IC202 to damp the unwanted iris hunting due to changes in light intensity.
The DC voltage set by VR215 (AIC SET) is applied to the inverted input of amplifier IC209(½) and pin 8 of IC202 for adjusting the amplitude of amplifier inside IC202 and setting the normal iris stop at the standard light intensity.
When the power switch is turned OFF, the regulated +3.3V which is generated in IC202 and supplied to the motor through terminal No. 1 of CN204 falls to zero and the lens iris is closed mechanically.
The regulated +3.3V is fed to other circuits in the Process circuit board as a sub-power source.
The circuit which consists of Q10 and D10 in IC210 and is connected to the non-inverted input of amplifier IC209(1/2) is the AIC start delay circuit.

5-5. AIC Start Delay Circuit

Outline

The automatic iris control (AIC) circuit generates the DC voltage corresponding to the Y signal and controls the iris opening of the lens with the DC voltage.
However, it takes some time for the cathode of the vidicon to be heated sufficiently in order to emit electrons at full force after turning ON the power switch. Therefore, the output signal of the vidicon is gradually resolved from its low signal level.
When the power switch is turned ON, the output signal of the vidicon is very low and the iris of AIC lens is wide open. At this time, if the camera is pointed at an extremely bright object, the bright image may "burn" the vidicon target.
Also, after turning ON the power switch, the camera initially produces an unnatural green color since the red(R) and blue(B) modulated components are riding on top of the green signal, and the R and B signals are resolved last.
The AIC start delay circuit generates the DC voltage for closing the lens iris initially after power turn ON.

Details

When the power switch is initially turned ON, +6V is applied to the emitter of Q10 in IC210 and Q10 is switched ON due to the surge current flowing into C221. When Q10 is switched ON, +6V at its collector is fed to the non-inverted input pin 5 of IC209.
The amplified output from IC209 is supplied to the automatic iris control (AIC) driver inside IC202 through pin 8 to close the lens iris. This state lasts approximately 15 seconds until C221 is fully charged and Q10 is switched OFF. When Q10 is switched OFF, the lens iris is controlled by the DC voltage corresponding to the incoming light intensity.
In this way, the lens iris is closed during the initial period after the power switch is turned ON in order to prevent the vidicon from burning and avoid unnatural green color in the highlights.

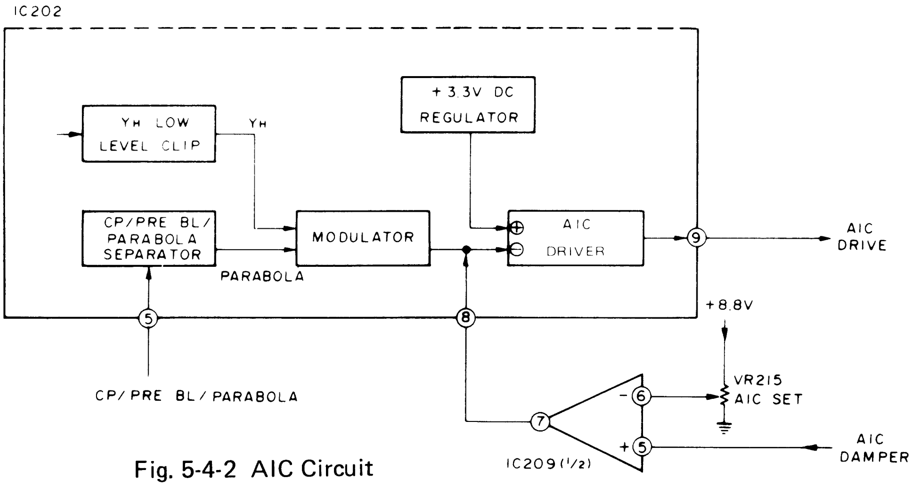


Fig. 5-4-2 AIC Circuit

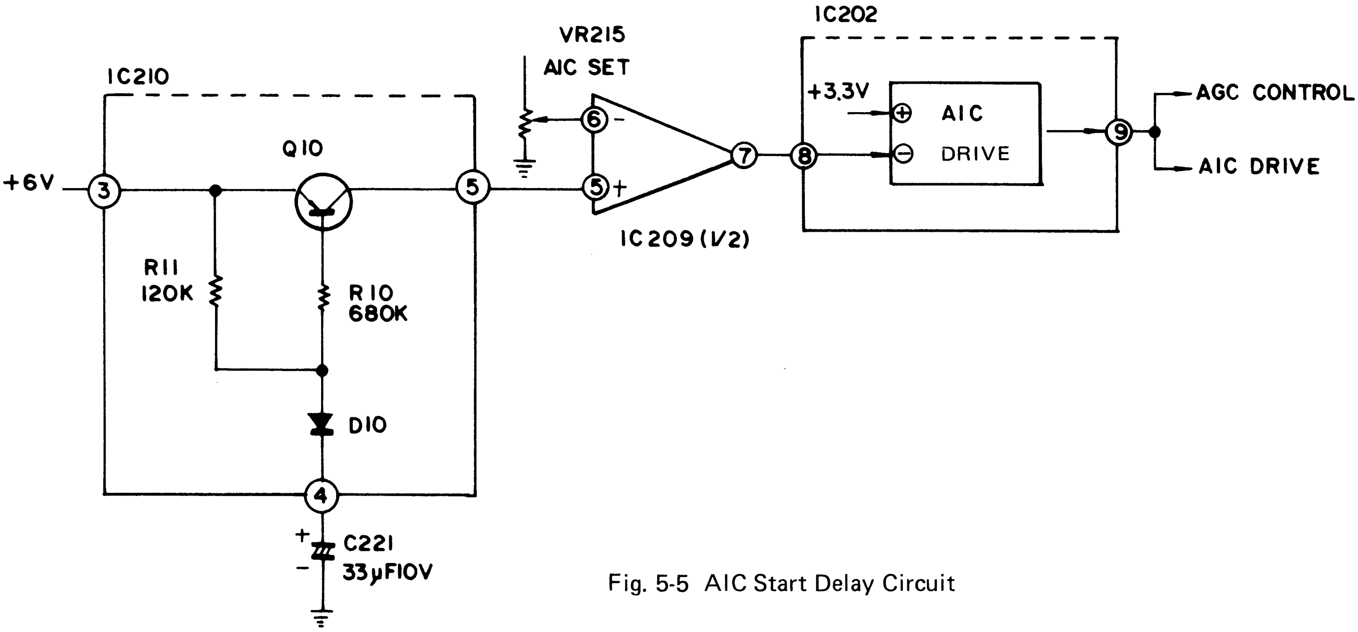

IC202
VR215
AIC SET
IC210
+3.3V
AIC
DRIVE
AGC CONTROL
AIC DRIVE
Q10
+6V
3
5
6
7
8
9
IC209 (1/2)
R11
120K
R10
680K
D10
4
C221
33μF10V

Fig. 5-5 AIC Start Delay Circuit

5-6. Horizontal Aperture Signal Generator Circuit

Outline

This circuit generates the horizontal edge (aperture) signal to enhance the horizontal resolution.

Details

The luminance (Y_H) signal having high frequency response is fed from the Y_H signal circuit to buffer inside IC203 through pin 16.
When the camera is aimed at an object Ⓐ for example, signal Ⓑ passed through pin 18 of IC203, signal Ⓒ delayed 0.2μsec. by delay line LC205 and amplified in the H. aperture generator circuit and signal Ⓓ which results from the delayed Y_H signal being reflected back through LC205 and delayed again (0.4μsec.) appear at the output of the aperture generator where they are mixed in fixed proportions to make up the horizontal (H) aperture signal Ⓔ (Fig. 5-6-1).

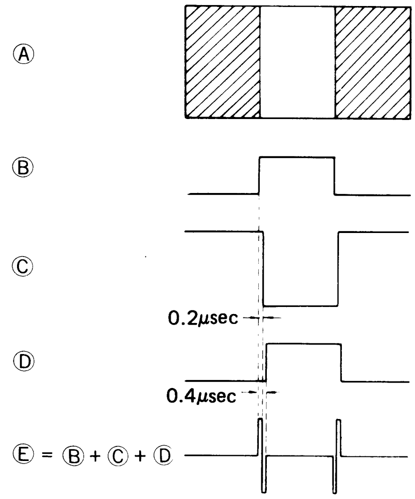

Ⓐ
Ⓑ
Ⓒ
0.2μsec
Ⓓ
0.4μsec
Ⓔ = Ⓑ + Ⓒ + Ⓓ

Fig. 5-6-1 Horizontal Aperture Signal

The H. aperture signal obtained in this way is applied through pin 3 of IC203 and pin 7 of IC205 to the H. aperture noise coring/suppress circuit, where the noise mixed in the H. aperture signal Ⓕ is removed Ⓖ.

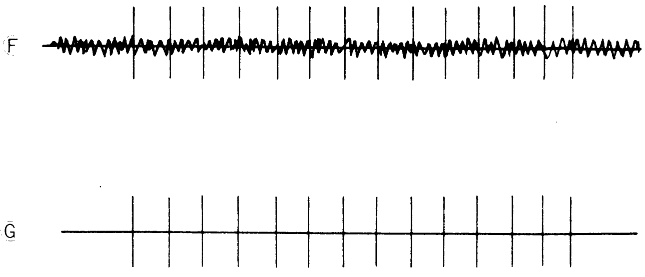


Fig. 5-6-2 H. Aperture Noise Corning

The H. aperture signal which undergoes the noise coring/suppress circuit is then supplied through pin 8 of IC205 to mixing amplifier Q204, where it is mixed with the chrominance signal.
Z201 is a trap circuit which removes the 3.58MHz modulated component.

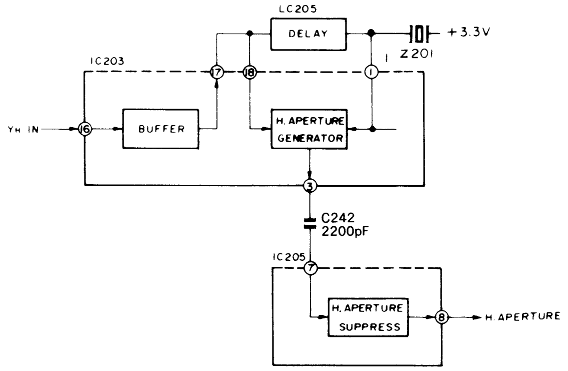

LC205
DELAY
+3.3V
Z201
IC203
17
18
1
YH IN
16
BUFFER
H. APERTURE GENERATOR
3
C242
2200pF
IC205
7
H. APERTURE SUPPRESS
8
H APERTURE

Fig. 5-6-3 H. Aperture Signal Generator Circuit

5-7. Vertical Edge Signal Generator Circuit

Outline

This circuit generates a vertical edge signal for increasing the vertical resolution by enhancing vertical edge contrast.

Details

The luminance [Y(edge)] signal for making the vertical (V) edge signal supplied from the Y(edge) signal circuit through pin 13 of IC202 is fed to pin 1 of IC206 through VR230 (V. EDGE BALANCE). This Y(edge) signal modulates the subcarrier signal which is applied from the pulse distribution circuit to pin 3 of IC206.
The modulated signal from pin 7 of IC206 is sent to the glass delay line DL202 which delays the input signal by 1H line.
The 1H-delayed modulated signal is detected by the full-wave detector circuit consisting of T201, Q215 and Q216. The delayed Y(edge) signal Ⓑ from the emitters of Q215 and Q216 is fed to the base of Q210, where it is mixed with the undelayed Y(edge) signal Ⓐ applied to the emitter of Q210 to form a vertical edge signal Ⓒ at the collector.

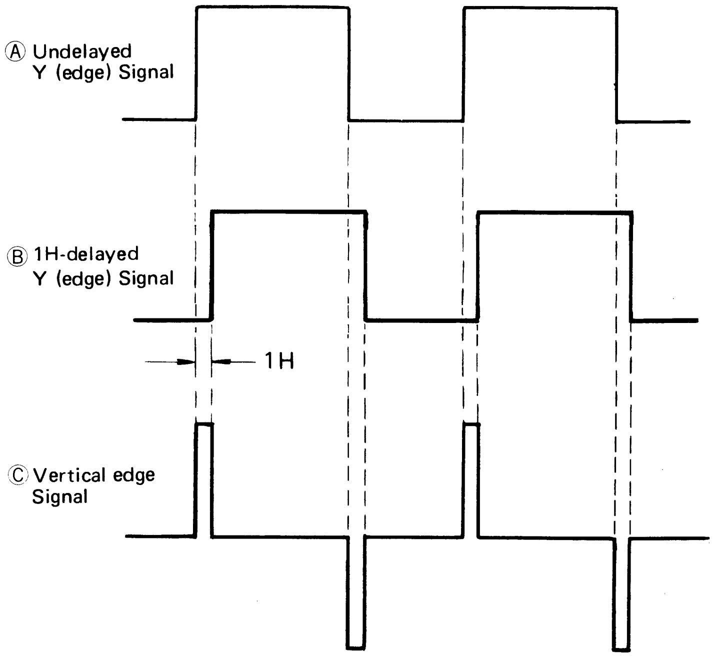

Ⓐ Undelayed
Y (edge) Signal
Ⓑ 1H-delayed
Y (edge) Signal
1H
Ⓒ Vertical edge
Signal

Fig. 5-7-1 Vertical Edge Signal

The vertical edge signal is sent to the low pass filter LC210 where the 4.43MHz and its harmonics are removed. The vertical edge signal from the low pass filter is sent via the output amplifier, consisting of Q211 – Q214, to the vertical transient spurious correction circuit inside IC204, and to the YH signal circuit where it is mixed with the YH signal.

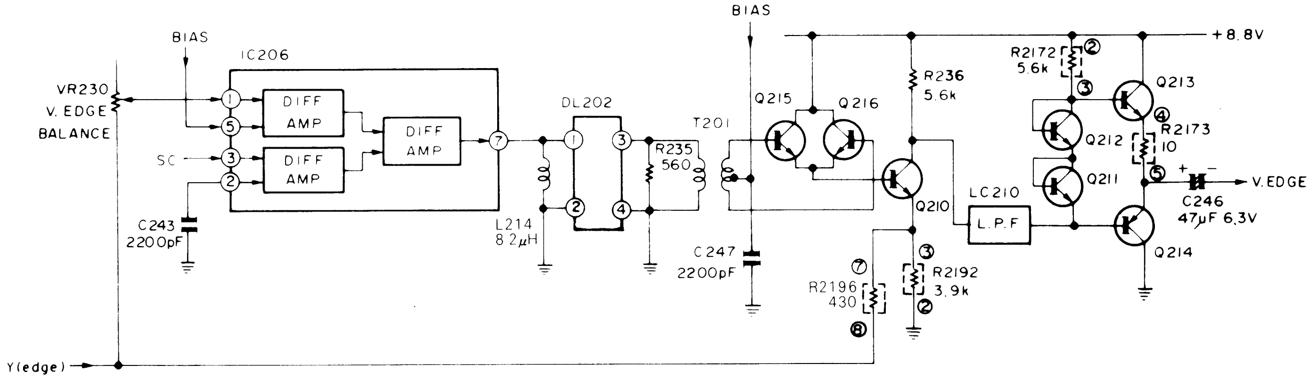

BIAS
IC206
VR230
V. EDGE
BALANCE
①
⑤
③
②
SC
DIFF AMP
DIFF AMP
DIFF AMP
⑦
C243
2200pF
DL202
①
③
②
④
L214
8 2μH
T201
R235
560
C 247
2200pF
BIAS
Q215
Q216
R236
5.6k
Q210
⑦
R2196
430
⑧
③
R2192
3.9k
②
LC210
L.P.F
R2172
5.6k
②
③
Q212
Q211
Q213
④
R2173
10
⑤
Q214
+8.8V
C246
47μF 6.3V
V.EDGE
Y(edge)

Fig. 5-7-2 V. Edge Signal Generator Circuit

5-8. Red and Blue Separation & Chroma Processing Circuit.

This circuit consists of the red and blue separation circuit, the vertical transient spurious correction circuit, the shading correction circuit, the tracking correction circuit, the red signal detection circuit and the blue signal detection circuit.

5-8-1. Red and Blue Separation Circuit

Outline

This circuit takes out the modulated red(Rc) and blue(Bc) signals from the combined preamplifier output signal which is composed of a green(G) signal mixed with 3.58MHz modulated red(Rc) and blue(Bc) signals.

Details

The amplified pre-video signal Ⓐ obtained at pin 17 of IC202 is fed to 3.58MHz band pass filter (BPF) LC202 where the Rc/Bc signal Ⓑ is detected.

The detected Rc/Bc signal is then supplied to the 90° phase shifter Q202 through VR203 (Rc/Bc GAIN), the Rc/Bc amplifier inside IC202, C231 and VR206 (Rc/Bc SEPARATION-2). The 90° phase-shifted Rc/Bc signal Ⓒ obtained at the junction point of VC201 (Rc/Bc SEPARATION-1) and R252 is then applied to the Rc/Bc separation circuit inside IC204 through pin 18. VC201 is a control for shifting the phase of Rc/Bc signal by 90°.

The Rc/Bc signal Ⓑ at pin 3 of IC202 is also supplied to 1/2H delay line DL201(1/2) where it is delayed a half horizontal line (32μsec). The 1/2H-delayed signal is then fed to another 1/2H delay line DL201(1/2) through amplifier Q203. (Q203 is used for matching the impedance between two 1/2H delay lines.)

The inverted 1H-delayed Rc/Bc signal Ⓓ obtained at the junction point of C224 and R2051 in BR205 is supplied to the vertical transient spurious correction circuit inside IC204 via pin 17. (The vertical transient spurious correction will be described later.) The Rc/Bc signal undergoes the vertical transient spurious correction is supplied to the Rc/Bc separation circuit.

In the Rc/Bc separation circuit, the 90° phase-shifted Rc/Bc signal Ⓒ and the inverted 1H-delayed Rc/Bc signal Ⓓ are added forming the Rc signal Ⓔ, and the Rc/Bc signal Ⓒ and the Rc/Bc signal Ⓓ are subtracted each other forming the Bc signal Ⓕ.

The Rc and Bc signals are fed to the respective shading/tracking correction circuits.

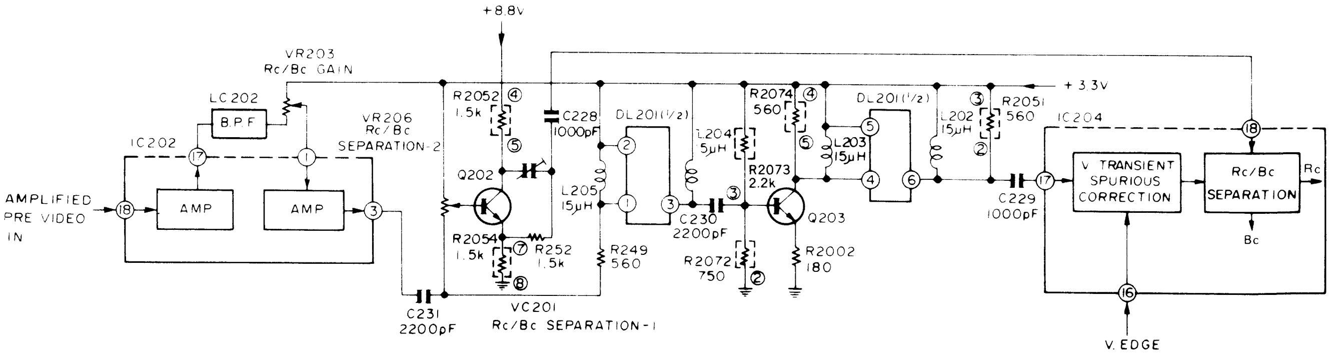

+8.8V
VR203
Rc/Bc GAIN
LC202
B.P.F
IC202
17
1
VR206
Rc/Bc
SEPARATION-2
AMPLIFIED
PRE VIDEO
IN
18
AMP
AMP
3
R2052 ④
1.5k
⑤
C228
1000pF
Q202
R2054
1.5k
⑦
R252
1.5k
⑧
C231
2200pF
VC201
Rc/Bc SEPARATION-1
DL201(1/2)
2
1
3
L205
15μH
R249
560
L204
5μH
C230
2200pF
③
R2072
750
②
R2074 ④
560
⑤
R2073
2.2k
Q203
R2002
180
DL201(1/2)
5
4
6
L203
15μH
L202
15μH
③
R2051
560
②
+3.3V
IC204
18
C229
1000pF
17
V TRANSIENT
SPURIOUS
CORRECTION
Rc/Bc
SEPARATION
Rc
Bc
16
V. EDGE

Fig. 5-8-1 R/B Separation Circuit

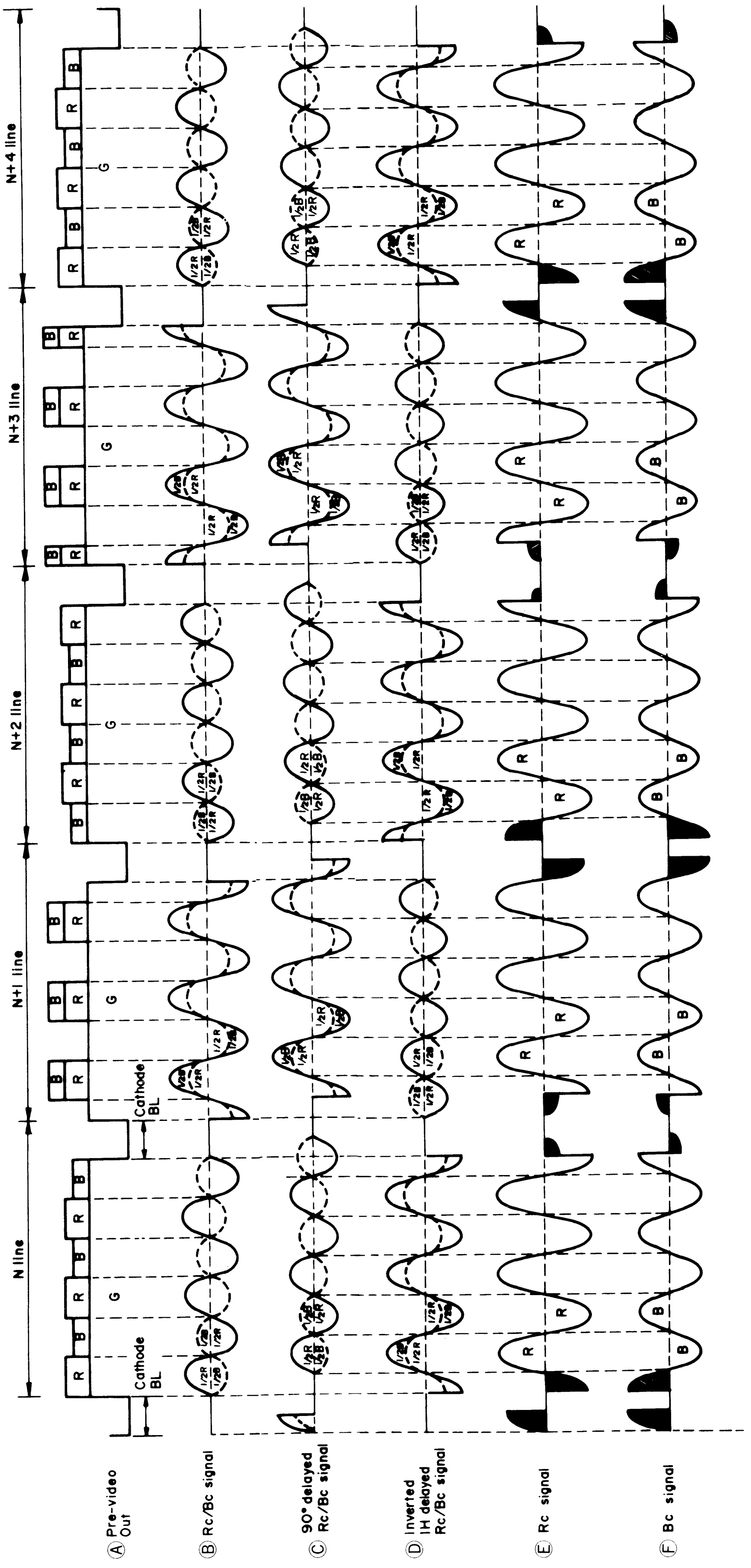

N line
N+1 line
N+2 line
N+3 line
N+4 line
R
B
G
Cathode BL
1/2R
1/2B
Ⓐ Pre-video Out
Ⓑ Rc/Bc signal
Ⓒ 90° delayed Rc/Bc signal
Ⓓ Inverted 1H delayed Rc/Bc signal
Ⓔ Rc signal
Ⓕ Bc signal

Fig. 5-8-2 Rc/Bc Signal Separation

5-8-2. Vertical Transient Spurious Correction Circuit

Outline

As described previously, the Rc and Bc signals are separated from each other by addition and subtraction of the one line (1H) delayed Rc/Bc signal and the phase shifted Rc/Bc signals but not delayed.

When a pattern such as shown in Fig. 5-8-3 is seen by the camera, the Rc/Bc signal which is not delayed appears as in Ⓘ in Fig. 5-8-4, and the Rc/Bc signal delayed one line (1H) becomes as in Ⓙ.

Therefore, it is impossible to secure vertical correlation between Rc/Bc signals of N+1 line, and a "spurious signal" differing in level of Rc and Bc signals against Y signal Ⓗ is generated, and the vertical (V) edge of the object is unnaturally colored by this "spurious signal".

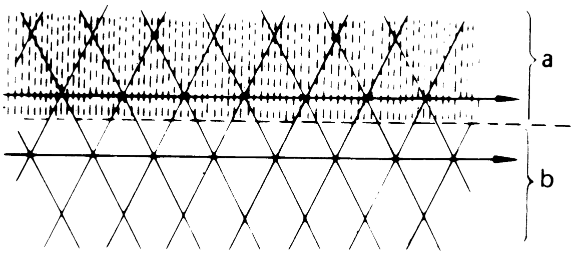
The vertical transient spurious correction circuit controls the amplitude of 1H-delayed Rc/Bc signal Ⓙ corresponding to N+1 line with vertical (V) edge signal Ⓚ and the signal Ⓛ is made. This provides vertical correlation between Rc/Bc signals Ⓘ and Ⓛ prior to color separation.

Details

The vertical edge signal Ⓚ in Fig. 5-8-4 is sent from the vertical edge signal generator circuit to the vertical transient spurious correction circuit inside IC204 through pin 16.

In this circuit, those parts of the 1H-delayed Rc/Bc signal Ⓙ which do not correlate with the Rc/Bc signal Ⓘ (not 1H-delayed) are controlled in level by the vertical edge signal Ⓚ.

The corrected Rc/Bc signal Ⓛ is fed to the Rc/Bc separation circuit inside IC204.



a : Dark object
b : Bright object

Fig. 5-8-3

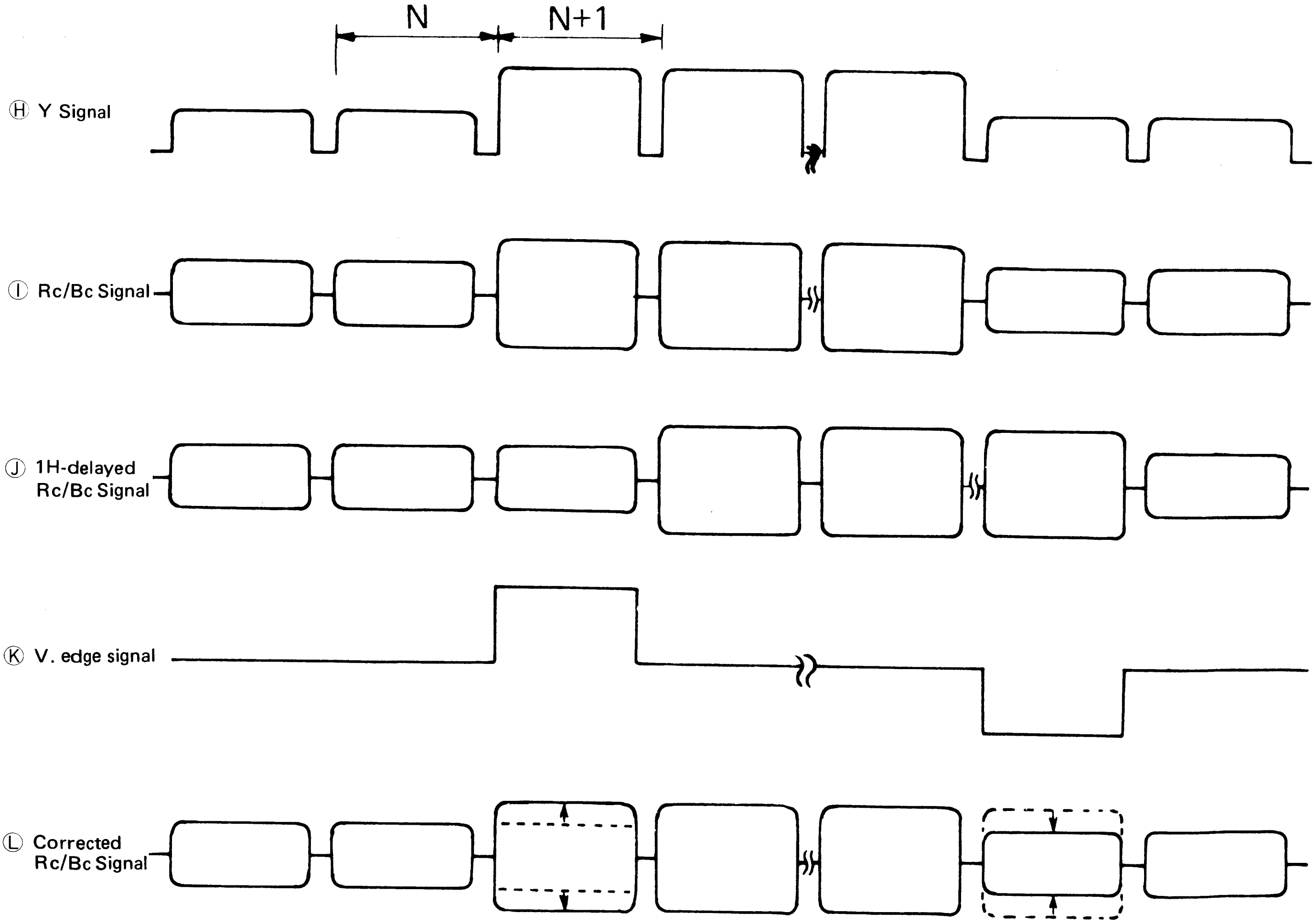


Fig. 5-8-4 Vertical Transient Spurious Correction

5-8-3. Shading Correction Circuit

Outline

Even when dynamic focus is applied to grid-4(G4) of pick-up tube, the non-uniformity of modulation due to uneven focus on the target cannot be completely eliminated.

Modulation non-uniformity also occurs due to non-uniform structure in the photoconductive layer of the pick-up tube (manufacture tolerance).

The shading correction circuit compensates for residual picture shading using horizontal (H) and vertical (V) sawtooth and parabola signals generated in the Deflection circuit board.

Details

- **Red shading correction**

The vertical parabola and sawtooth, and horizontal parabola and sawtooth signals which are applied from the Deflection circuit board are supplied to the wiper arms of VR208 (R-V.PARA), VR209 (R-V.SAW), VR210 (R-H.PARA) and VR211 (R-H.SAW).

These signals are fed to both the inverted (pin 2) and non-inverted input (pin 3) of amplifier IC208(1/2), where they are mixed and amplified. The output of IC208 at pin 1 produces a positive or negative shading correction signal depending on the position of these controls.

The shading correction signal adjusted by VR208 – VR211 is forwarded to the shading/tracking correction circuit inside IC204 through pin 3, where it modulates the modulated red(Rc) signal for correcting the signal shading.

Suppose a uniformly illuminated white object is seen by the camera and the Rc signal has a shading (unevenness of amplitude) such as that shown in Fig. 5-8-5 Ⓜ. This is sent to the shading/tracking correction circuit from the Rc/Bc separation circuit inside IC204. In this case, the four red shading controls are adjusted to generate the shading correction signal Ⓝ at pin 1 of IC208, and it is applied to the correction circuit. The Rc signal Ⓜ is modulated by the shading correction signal Ⓝ and the corrected signal Ⓞ is produced. The shading correction signal mixed with the Rc signal Ⓞ is removed in the correction circuit and the Rc signal Ⓟ is obtained.

In this way, the shading of the Rc signal is corrected.

The corrected Rc signal is then fed to the red signal detection circuit inside IC204.

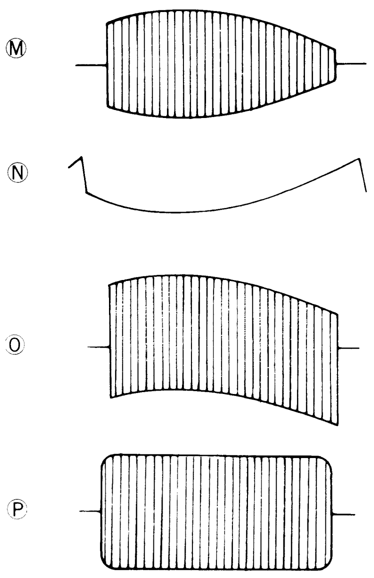


Fig. 5-8-5 Shading Correction

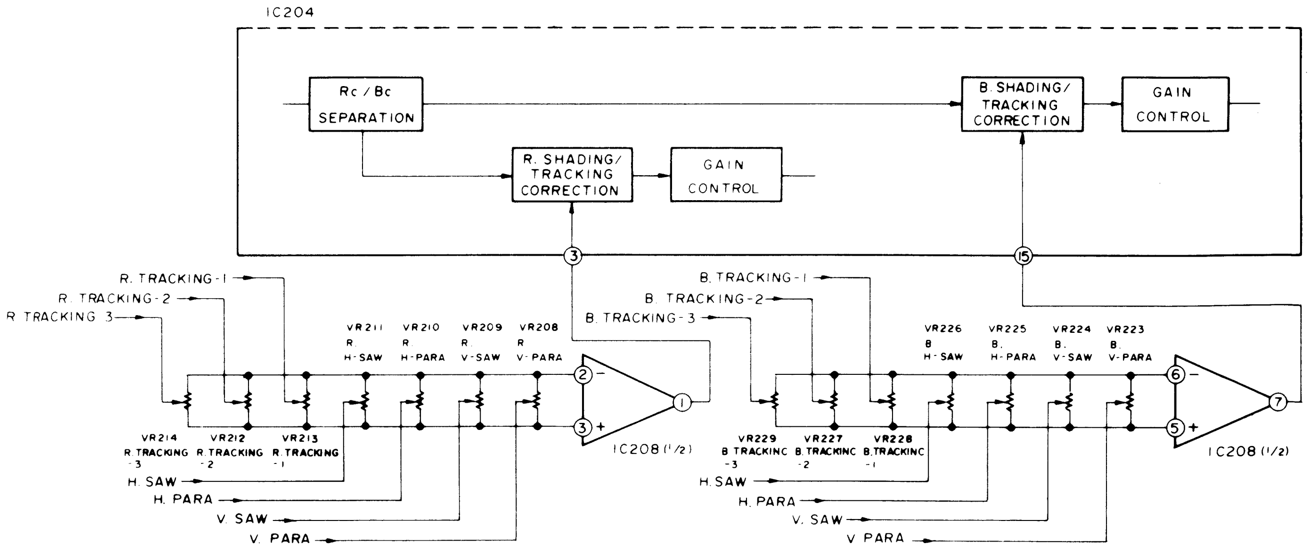

IC204
Rc / Bc SEPARATION
R. SHADING/ TRACKING CORRECTION
GAIN CONTROL
B. SHADING/ TRACKING CORRECTION
GAIN CONTROL
3
15
R. TRACKING-1
R. TRACKING-2
R TRACKING 3
VR211 R H-SAW
VR210 R H-PARA
VR209 R V-SAW
VR208 R V-PARA
2
3
1
IC208 (1/2)
VR214 R.TRACKING -3
VR212 R.TRACKING -2
VR213 R.TRACKING -1
H. SAW
H. PARA
V. SAW
V. PARA
B. TRACKING-1
B. TRACKING-2
B. TRACKING-3
VR226 B H-SAW
VR225 B. H-PARA
VR224 B. V-SAW
VR223 B. V-PARA
6
5
7
IC208 (1/2)
VR229 B TRACKINC -3
VR227 B.TRACKINC -2
VR228 B.TRACKINC -1
H.SAW
H. PARA
V. SAW
V PARA

Fig. 5-8-6 Shading/Tracking Correction Circuit

- **Blue shading correction**

As in the case of red shading correction, the vertical and horizontal parabola and sawtooth signals supplied to the wiper arms of VR223 (B-V.PARA), VR224 (B-V.SAW), VR225 (B-H.PARA) and VR226 (B-H.SAW) are fed to both the inverted (pin 6) and non-inverted (pin 5) input of IC208(1/2).

The positive or negative shading correction signal obtained at pin 7 of IC208 is fed to the blue shading/tracking correction circuit through pin 15 of IC204, where it modulates the modulated blue (Bc) signal (supplied from the Rc/Bc separation circuit) for the shading correction.

The shading-corrected Bc signal is then applied to the blue signal detection circuit inside IC204.

5-8-4. Tracking Correction Circuit

Outline

This circuit corrects the characteristic of linearity for R and B signals using the tracking signals generated in the tracking signal generator circuit, and tracks the R and B signals with the Y_L signal. (Refer to tracking signal generator circuit on page 27).

Details

The tracking-1 signal Ⓠ and the tracking-2 signal Ⓡ which are generated in the tracking-1 and 2 signal generator circuit in IC201 are fed to the wiper arms of VR213 (R.TRACKING-1) and VR212 (R.TRACKING-2) through pin 9 and pin 8 respectively.

The tracking-3 signal Ⓢ which is generated in the tracking-3 signal generator in IC201 is forwarded to the VR214 (R.TRACKING-3) via pin 11.

These signals are applied to both the inverted (pin 2) and non-inverted (pin 3) input of amplifier IC208(1/2), where they are mixed and amplified. The positive or negative red tracking correction signal is produced at pin 1 of IC208 depending upon the position of these controls.

The correction signal is then fed to the red shading/tracking correction circuit through pin 3 of IC204, where it modulates the Rc signal Ⓣ comes from the Rc/Bc separation circuit for correcting the linearity of Rc signal Ⓤ. In this way, the R signal matches the Y_L signal.

VR213 corrects the relatively low level of R signal, VR212 for the relatively high level, and VR214 for the highest level (Fig. 5-8-8).

The tracking correction for the B signal is similarly done with VR228 (B.TRACKING-1), VR227 (B.TRACKING-2), VR229 (B.TRACKING-3), IC208(1/2) and the blue tracking correction circuit inside IC204.

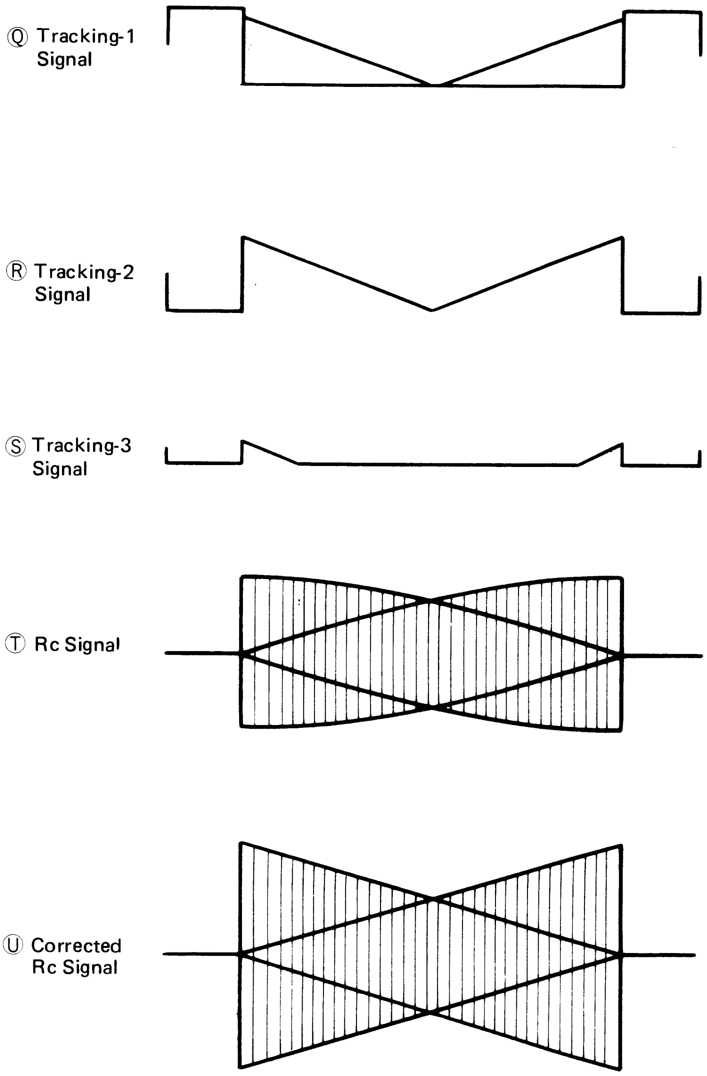


Fig. 5-8-7 Tracking Correction-1

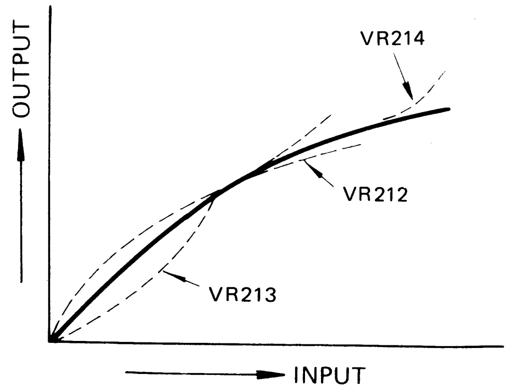


Fig. 5-8-8 Tracking Correction-2

5-8-5. Red Signal Detection Circuit

Outline

This circuit receives the modulated red(Rc) signal from the red shading/tracking correction circuit, removes the modulation and detects the red video signal.

The red video signal is then supplied to the chrominance encoding circuit.

Details

The Rc signal Ⓥ from the red shading/tracking correction circuit is fed through the gain control circuit to the amplifier where it is amplified. The amplified positive Rc signal Ⓦ and negative Rc signal Ⓧ obtained at the output of amplifier are forwarded to the detector.

The detected Rc signal Ⓨ is then fed to the low pass filter (LPF) LC207. The detector which extracts the red signal produces a unwanted 7.16MHz ripple signal Ⓨ. The 7.16MHz component is removed by the LPF leaving only the red signal Ⓩ.

The resultant red signal is fed to the chrominance encoding circuit through buffer Q207.

VR222 (R.GAIN) which is located on the side of the camera is a control for fine adjustment of the red signal gain. VR220 (R.GAIN PRESET) is a red signal level presetting control.

VR207 (R.PEDESTAL) is a control for setting the red pedestal.

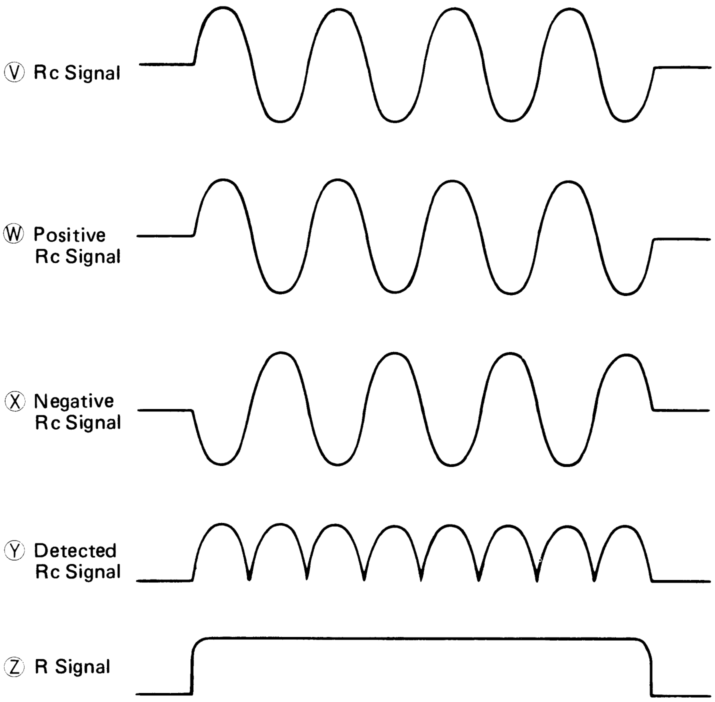

Ⓥ Rc Signal
Ⓦ Positive Rc Signal
Ⓧ Negative Rc Signal
Ⓨ Detected Rc Signal
Ⓩ R Signal

Fig. 5-8-9 Red Signal Detection

The preblanking (pre BL) pulse fed to the amplifier from the pulse distribution circuit removes the noise during the blanking period.

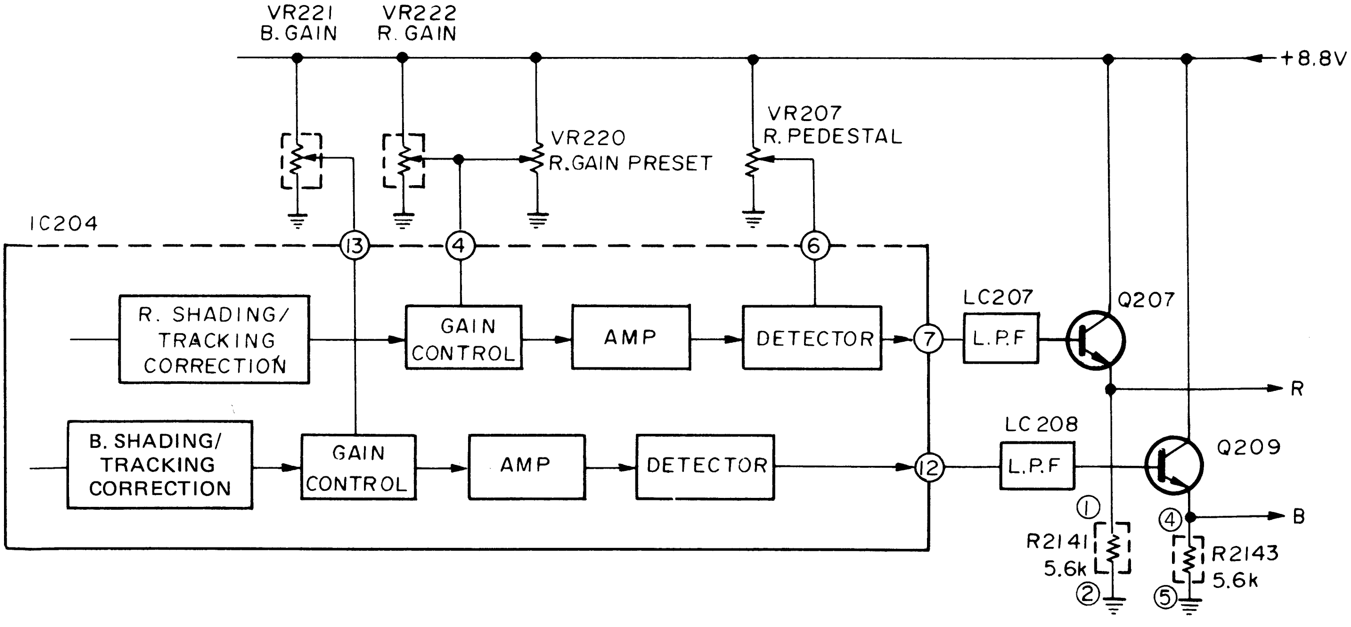

VR221
B. GAIN
VR222
R. GAIN
+8.8V
VR220
R.GAIN PRESET
VR207
R. PEDESTAL
IC204
⑬
④
⑥
R. SHADING/ TRACKING CORRECTION
GAIN CONTROL
AMP
DETECTOR
⑦
LC207
L.P.F
Q207
R
B. SHADING/ TRACKING CORRECTION
GAIN CONTROL
AMP
DETECTOR
⑫
LC 208
L.P.F
Q209
①
R2141
5.6k
②
④
B
R2143
5.6k
⑤

Fig. 5-8-10 R/B Signal Detection Circuit

5-8-6. Blue Signal Detection Circuit

Outline

This circuit uses the same design as the red signal detection circuit.
The circuit receives the modulated blue (Bc) signal from the blue shading/tracking correction circuit and converts it to the blue video signal.
The blue video signal is then fed to the chrominance encoding circuit.

Details

The Bc signal from the blue shading/tracking correction circuit in IC204 is sent to the low pass filter (LPF) LC208 after it undergoes the gain control, the amplification and the detection circuits.
The blue video signal obtained by removing the 7.16MHz ripple signal is then applied to the chrominance encoding circuit through buffer Q209.
VR221 (B.GAIN) on the side of the camera is a control for fine adjustment of the blue signal gain.

5-9. Chrominance Encoding Circuit

This circuit contains the color reproduction correction circuit, the gamma correction circuit, the chrominance signal generator circuit and the chroma clip/suppression circuit.

5-9-1. Color Reproduction Correction Circuit

Outline

This circuit receives the luminance (Y_L) signal having low frequency response characteristic, the red signal and the blue signal, and corrects colorimetry imperfection (particularly red and green) resulting from the spectral characteristic of the stripe filter which affects mostly the red and green signals.

Details

The red(R), blue(B) and Y_L signals obtained at the emitter of buffer Q207, Q209 and Q208 respectively are applied to clamp circuit inside IC205 through pin 3, pin 4 and pin 2. In the clamp circuit, the blanking level of these signals are clamped by the horizontal scanning start(Hs) pulse applied from the Hs/BL separation circuit respectively.
The clamped R, B and Y_L signals are forwarded to the matrix circuit. The R and Y_L signals are also applied to the R.color reproduction correction circuit and they are subtracted each other.
The R-Y_L color difference signal made by the subtraction is supplied to the matrix circuit. The B-Y_L color difference signal obtained by subtracting the B and Y_L signals each other in the B.color reproduction correction circuit is also supplied to the matrix circuit.
The R, B, Y_L, R-Y_L and B-Y_L signals undergoes the matrix to generate the corrected R, B and Y_L signals for correcting the color reproduction of red and green image.
When the camera is pointed at a black and white object, the signal level of R, B and Y_L is the same. Therefore, no correction signal is applied to the matrix circuit. However, the camera is pointed at a colored object, the correction signal is generated.

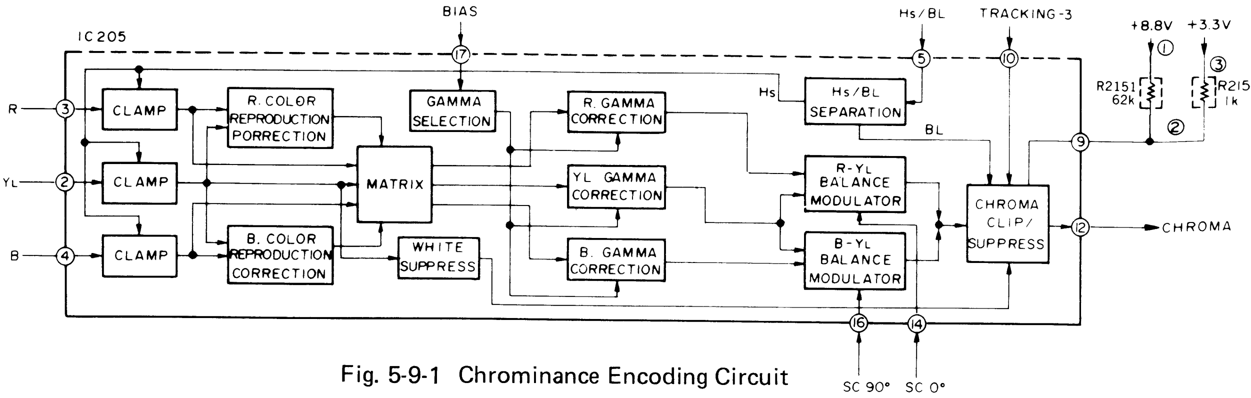

BIAS
IC205
Hs/BL
TRACKING-3
+8.8V
+3.3V
①
③
R2151 62k
R2152 1k
②
R
YL
B
③
②
④
⑰
⑤
⑩
⑨
⑫
⑯
⑭
CLAMP
CLAMP
CLAMP
R. COLOR REPRODUCTION PORRECTION
B. COLOR REPRODUCTION CORRECTION
MATRIX
GAMMA SELECTION
WHITE SUPPRESS
R. GAMMA CORRECTION
YL GAMMA CORRECTION
B. GAMMA CORRECTION
Hs
Hs/BL SEPARATION
BL
R-YL BALANCE MODULATOR
B-YL BALANCE MODULATOR
CHROMA CLIP/ SUPPRESS
CHROMA
SC 90°
SC 0°

Fig. 5-9-1 Chrominance Encoding Circuit

5-9-2. Gamma Correction Circuit

Outline

This circuit receives the red(R), blue(B), and Y_L signals from the color reproduction correction circuit.

These signals undergoes the gamma correction and goes to the chrominance signal generator circuit.

Details

The R, B and Y_L signals from the matrix circuit are supplied to the gamma(γ) correction circuits respectively and undergoes the gamma correction. (Refer to the gamma correction circuit on page 30.) The suppression level and the extent of suppression are set by the gamma(γ) select circuit which is controlled by the DC voltage at pin 17 of IC205.

The gamma-corrected R, B and Y_L signals are forwarded to the chrominance signal generator circuit.

5-9-3. Chrominance Signal Generator Circuit

Outline

This circuit matrixes the red(R), blue(B) and Y_L signals to generates the R-Y_L and B-Y_L color difference signals, and modulates these base band color difference signals on two subcarrier differing in phase by 90° to generate a chrominance signal.

Details

The R signal from the R gamma correction circuit is fed to the R-Y_L balance modulator circuit. The Y_L signal from the Y_L gamma correction circuit is also supplied to the R-Y_L balance modulator circuit where the R-Y_L color difference signal is made up inside the modulator. The R-Y_L signal modulates the 0° phase subcarrier (R-Y) SC applied to the modulator from the sync distribution circuit through pin 14 of IC205. The modulator produces an AM modulated (suppressed carrier) signal.

Similarly, the B signal and Y_L signal from the B and Y_L gamma correction circuits are fed to the B-Y_L balance modulator circuit respectively. The B-Y_L color difference signal made up in the modulator and the 90° phase shifted subcarrier [its phase is delayed 90° with respect to (R-Y) SC]applied to the modulator through pin 16 of IC205 undergoes suppressed carrier quadrature modulation.

The R-Y_L modulated signal and the B-Y_L modulated signal are added forming the chrominance signal.

The chrominance signal is then forwarded to the low level chroma suppression circuit.

5-9-4. Chroma clip/Suppression Circuit

Outline

This circuit contains the high Y level chroma clip circuit and low level chroma suppression circuit.

The high Y level chroma clip circuit clips the green color which results when an excessively bright object is shot with the camera. This is caused by the lack of beam in the pick-up tube. When the beam of pick-up tube is insufficient to discharge the target due to excessive light reflected from a brightly illuminated object, the modulated red(R)/blue(B) signal components which riding on top of the green(G) signal become satulated (Ⓐ and Ⓑ). Therefore, the bright picture parts turn into an unnatural green color due to lack of red and blue.

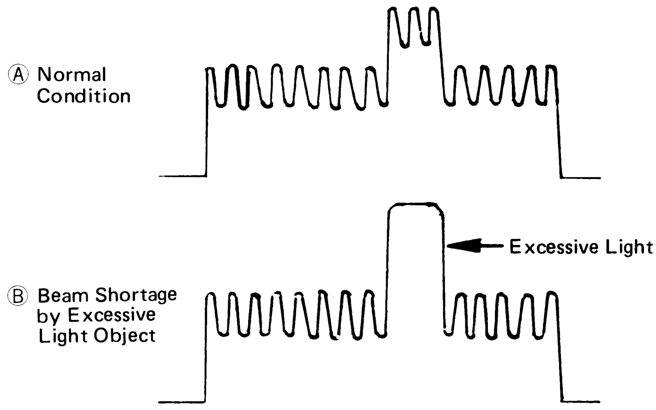


Fig. 5-9-2 Beam Shortage

The low level chroma suppression circuit enchances color reproduction in the low luminance condition by improving the white balance, when the color of the object is faint.

Details

The chrominance signal is supplied to the chroma clip/suppression circuit from the R-Y_L and B-Y_L balance modulator circuits.

The tracking-3 signal (high luminance level signal) which is generated in the tracking-3 signal generator circuit in IC201 is fed through pin 10 of IC205 to the chroma clip/suppression circuit. The blanking (BL) pulse is supplied from the Hs/BL separation circuit to the same circuit, where they are mixed forming the high Y level chroma clip signal. The chrominance signal corresponding to the excessive bright object and the BL period is clipped and does not reach the PAL output.

If this circuit is malfunctioning, the bright picture parts would turn into an unnatural green color, and the chroma signal would appear on the blanking period of the PAL signal.

The DC voltage, obtained by dividing the voltage between +8.8V and +3.3V with R2151 and R2152 in BR215 and fed to the chroma clip/suppression circuit via pin 9, determines the clip level of chroma signal.

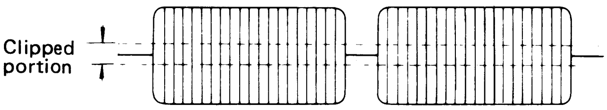


Fig. 5-9-3 Low Level Chroma Suppression

The Y_L signal from the Y_L clamp circuit is applied to the Y(sup) white suppression circuit. The white-suppressed Y(sup) signal is then fed to the chroma clip/suppression circuit together with the DC voltage to suppress the chrominance signal corresponding to the low luminance signal mainly.

The clipped and suppressed chroma signal is then forwarded through pin 12 of IC205 and VR216 (CHROMA GAIN) to the emitter of mixing amplifier Q204 where it is mixed with the H.aperture signal. The mixed signal is then amplified by Q204 and fed to the PAL signal processing circuit.

The chrominance signal at pin 12 of IC205 is also fed to the white balance detection circuit.

5-10. White Balance Detection Circuit

Outline

This circuit rectifies the chrominance signal due to imperfect white balance into a DC voltage, and supplies it to the white balance indicator circuit of the Deflection circuit board as a white balance control DC voltage which controls the vertical position of white balance indicator bar on the CRT screen.

Details

The chrominance signal from pin 12 of IC205 is fed through C262 and R2231 in BR223 to Q206 where it is peak-rectified and converted into the DC voltage. The DC voltage which corresponds to the condition of white balance and obtained at the junction point of R2233 and R2234 in BR223 is supplied to the white balance indicator circuit of the Deflection circuit board through terminal No. 11 of CN201.

The DC voltage increases during high chrominance leakage and decreases during low chrominance condition.

When the white balance switch on the side of the camera is set to the "CHECK" position, the DC voltage is sent to the Deflection circuit board. When it is set to the upper position, the DC voltage is grounded.

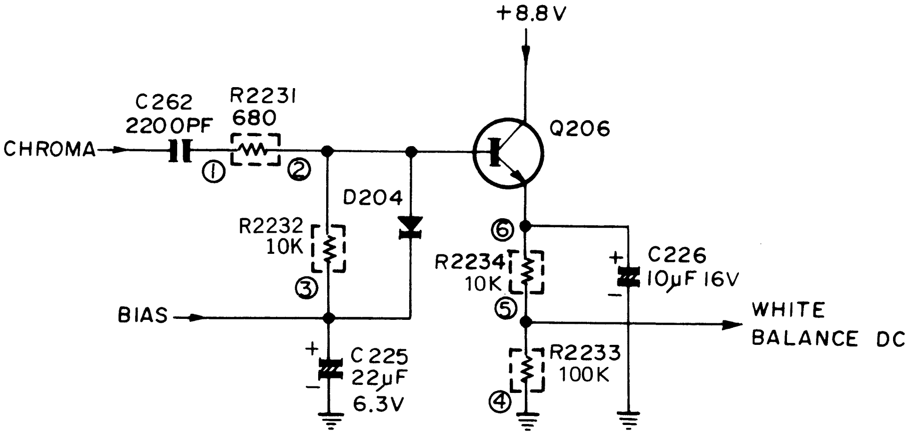


Fig. 5-10

Fig. 5-10 White Balance Detection Circuit

5-11. PAL Signal Processing Circuit

Outline

In this circuit, the chrominance signal, the luminance signal, the burst signal and the sync signal are mixed to produce a composite PAL signal. The PAL signal is applied to the portable VCR, or a table model type VCR through the power supply.

Details

The mixed signal Ⓐ of the luminance (Y_H) signal and the vertical (V) edge signal is fed to amplifier inside IC203 through pin 1. The mixed signal Ⓑ of the chrominance signal and the horizontal (H) aperture signal is supplied to the amplifier through pin 2. In the amplifier, these four signals are mixed and amplified(Ⓒ). The mixed signal Ⓒ is applied to the gain control amplifier, where it is amplified.

The amplified signal is forwarded through pin 13 and pin 12 of IC203 to the clamp circuit, where the blanking level of the amplified signal is clamped by the horizontal scanning start (Hs) pulse applied from the Hs/BL separation circuit in IC203.

The clamped signal is then sent to buffer and mixed with the positive blanking (BL) pulse.

The mixed signal Ⓓ with the BL pulse is supplied to the low level clip circuit and its BL portion is clipped setting the pedestal level.

The clipped signal Ⓔ is applied to the high level clip circuit where the signal exceeds 125IRE·unit (0.9V) is clipped.

The mixed signal of chrominance and luminance signal is mixed with the mixing signal Ⓕ of sync pulse and burst signal forming a composite PAL signal Ⓖ.

The PAL signal at pin 9 of IC203 is supplied to the VCR through C219 and R2042 in BR204.

Z204 is a trap circuit which removes modulated 3.58MHz component.

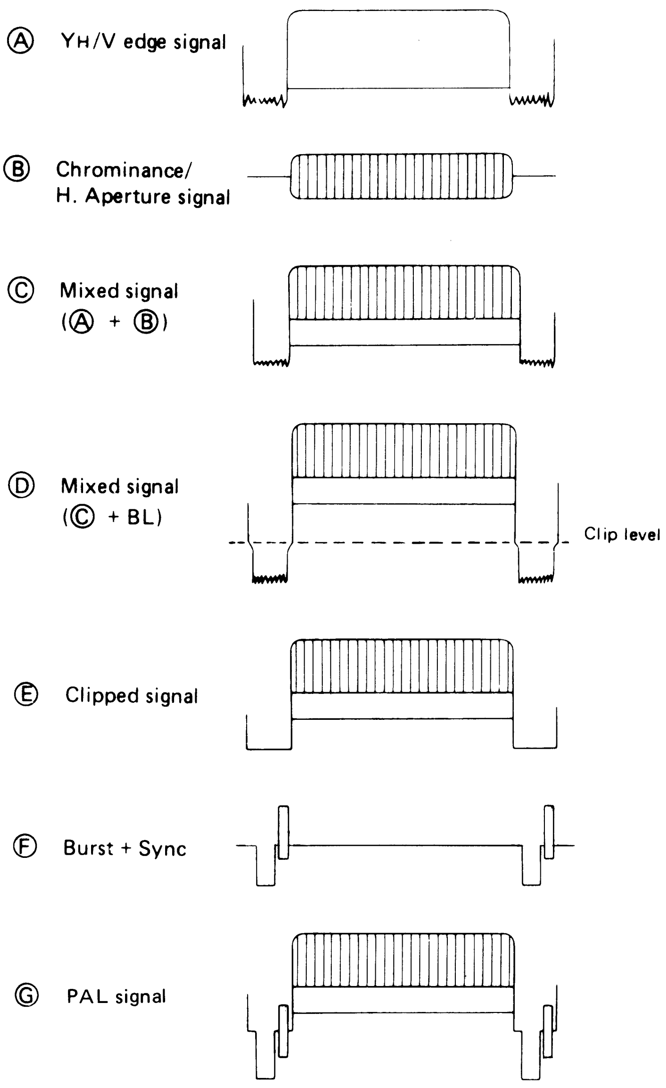

Ⓐ YH/V edge signal
Ⓑ Chrominance/ H. Aperture signal
Ⓒ Mixed signal (Ⓐ + Ⓑ)
Ⓓ Mixed signal (Ⓒ + BL)
Clip level
Ⓔ Clipped signal
Ⓕ Burst + Sync
Ⓖ PAL signal

Fig. 5-11-1 PAL Signal

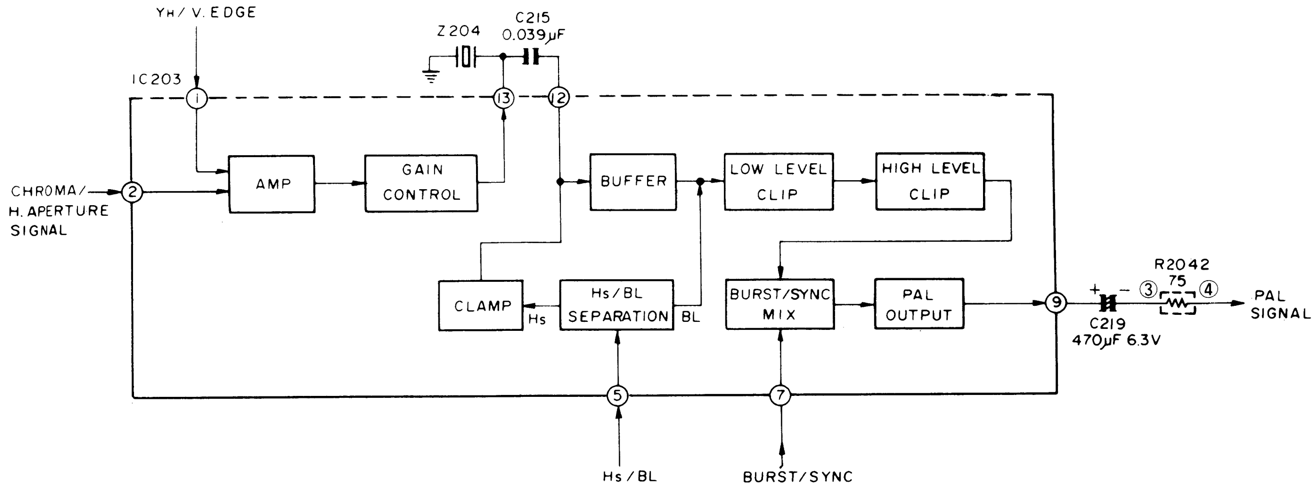

YH/ V. EDGE
IC203
Z204
C215 0.039μF
①
⑬
⑫
CHROMA/ H. APERTURE SIGNAL
②
AMP
GAIN CONTROL
BUFFER
LOW LEVEL CLIP
HIGH LEVEL CLIP
CLAMP
Hs
Hs/BL SEPARATION
BL
BURST/SYNC MIX
PAL OUTPUT
⑨
R2042 75
③
④
C219 470μF 6.3V
PAL SIGNAL
⑤
⑦
Hs/BL
BURST/SYNC

Fig. 5-11-2 PAL Signal Processing Circuit

5-12. Playback Sense Circuit

Outline

This circuit senses the recording or playback mode of the portable VCR.

When the portable VCR is set into the recording mode, this circuit sets the camera to supply the PAL output signal to the viewfinder, and the portable VCR for recording.

When the portable VCR is set into the playback mode, this circuit shuts off the camera function and supplies the playback signal from VCR to the viewfinder.

Details

When the portable VCR is set into the recording mode, no DC bias is applied to the base of Q13 in IC210 and Q13 remains OFF, and 6.2V zener diode D11 connected between +9V (pin 9) and ground (pin 10) through R13 and R15 turns ON to switch Q201 ON. Therefore, +8.8V at the collector of Q201 is supplied to the Process circuit board. At the same time, the PAL output signal at pin 9 of IC203 is fed to the viewfinder and the portable VCR for recording through the Deflection circuit board.

When the portable VCR is set into the playback mode, the playback signal which rides on top of +6V DC is supplied from the VCR to the base of Q13. Q13 is turned on by the +6V and the potential of its emitter and D11 anode become approximately +5.3V. Therefore, the 6.2V zener diode D11 is turned OFF causing Q201 to be OFF and shut off the Process circuit board and Preamplifier circuit board. In this way, the PAL signal is not generated in the camera and only the playback signal from the portable VCR is supplied to the viewfinder through the Deflection circuit board.

In the playback mode, Q11 and Q12 are turned ON and pin 8 of IC203 is grounded for setting the output of PAL output at pin 9 to high impedance.

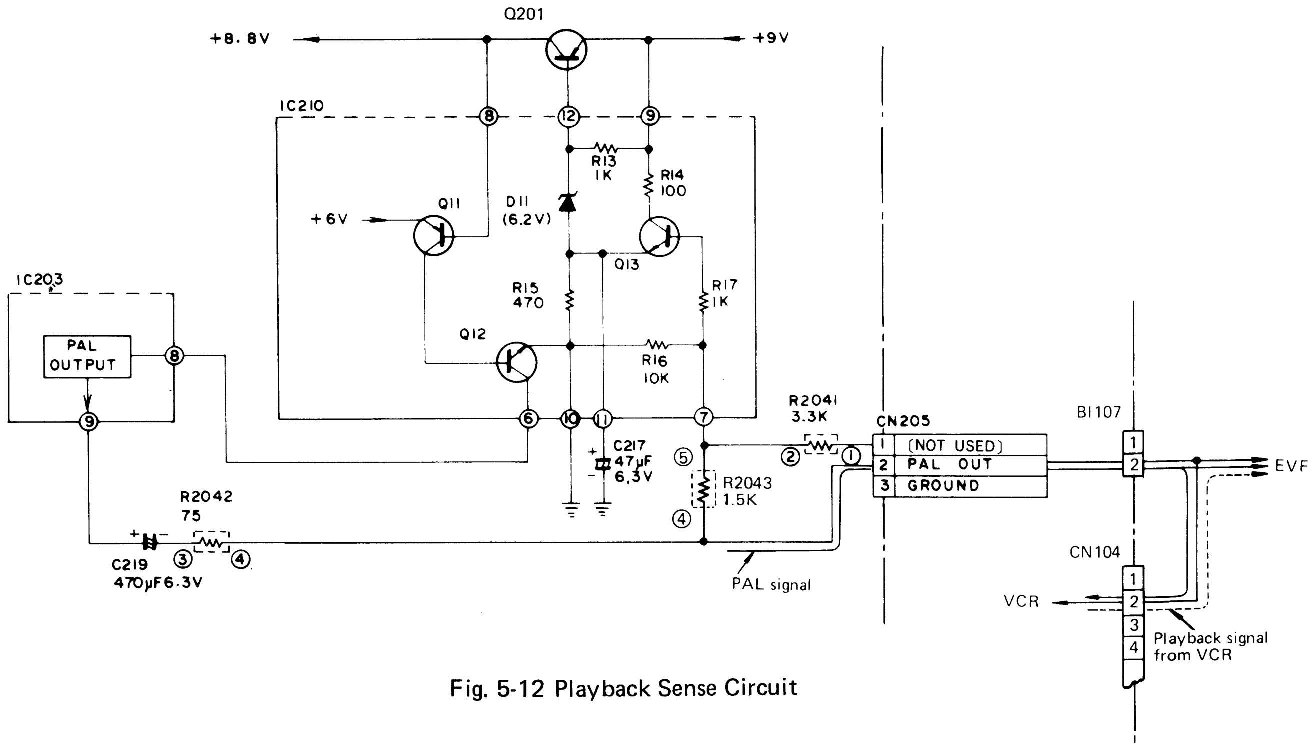

Q201
+8.8V
+9V
IC210
⑧
⑫
⑨
R13
1K
R14
100
+6V
Q11
D11
(6.2V)
Q13
R15
470
R17
1K
Q12
R16
10K
IC203
PAL
OUTPUT
⑧
⑨
⑥
⑩
⑪
⑦
C217
47μF
6.3V
⑤
R2043
1.5K
④
R2041
3.3K
②
①
CN205
1 (NOT USED)
2 PAL OUT
3 GROUND
BI107
1
2
EVF
R2042
75
C219
470μF6.3V
③
④
PAL signal
CN104
1
2
3
4
VCR
Playback signal
from VCR

Fig. 5-12 Playback Sense Circuit

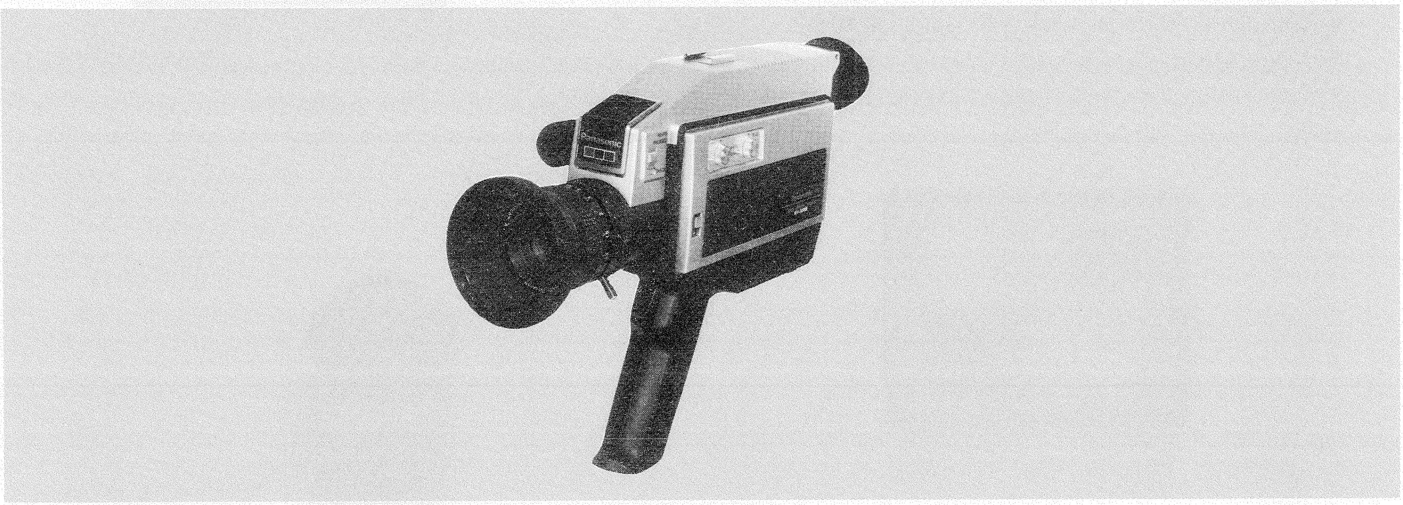
ORDER NO. AVD-8103-544

Service Manual

Vol. 2

Adjustment Procedures

Colour Video Cameras
WV-3000E/WV-3000N



490,-

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3. VIDICON REPLACEMENT 3
4. ADJUSTMENT PROCEDURE
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- Process circuit board 21

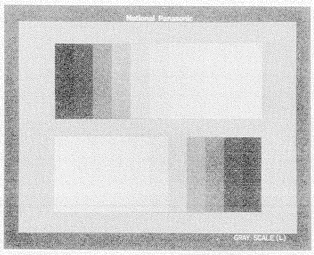
Panasonic / National

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

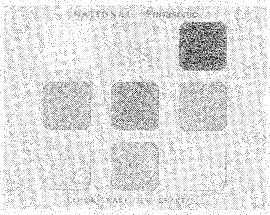
1. TEST EQUIPMENT REQUIRED

The following equipment is required for adjustment of WV-3000E/WV-3000N color camera.

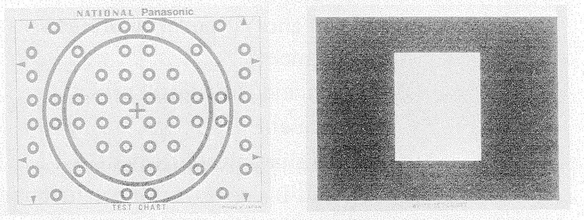
- Oscilloscope
  (dual trace, delayed, 25MHz bandwidth, with three proves, one must be 1:1)
- Digital voltmeter (DVM)
- Frequency counter
- Vectorscope
- Color video monitor
- Tripod
- Lighting [140 footcandles (1400 lux), 3200°K]
- Light meter
- Logarithmic gray scale chart (Parts No. YWV2310RB-99)


National Panasonic
GRAY SCALE (L)

- Color chart (Parts No. YWV2100RB98)


NATIONAL Panasonic
COLOR CHART (TEST CHART 5)

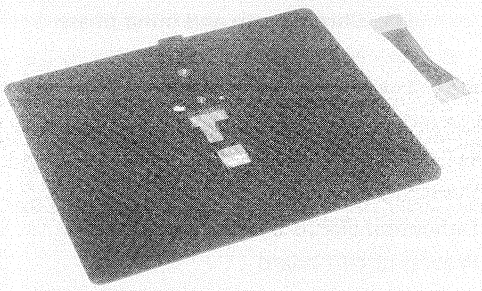
- Ball chart (Parts No. YWV2100RB03)


NATIONAL Panasonic
TEST CHART

Front

Rear

- PCB holding jig (Parts No. YWFACX002)



2. DISASSEMBLING PROCEDURE FOR ADJUSTMENT

- Turn the power off.
- Remove the two screws on the handle grip, remove the handle grip and disconnect the coupling connector for the start/stop switch. (Fig. 2-1)

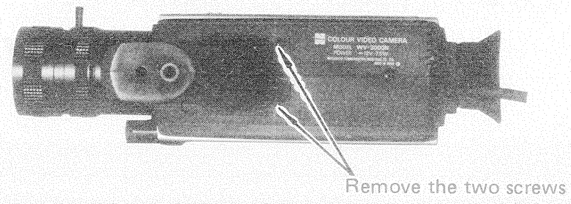

COLOUR VIDEO CAMERA
MODEL WV-3000N
Remove the two screws

Fig. 2-1

- Remove the two screws on the rear side of the upper cover. (Fig. 2-2)

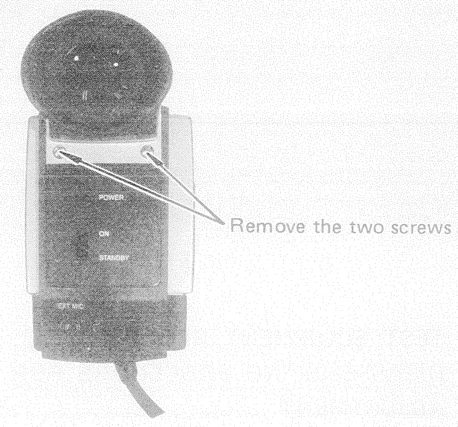

POWER
ON
STANDBY
EXT MIC
Remove the two screws

Fig. 2-2

- After sliding back the upper cover slightly, lift up the rear portion of the cover and remove the upper cover from the camera unit. (Fig. 2-3)

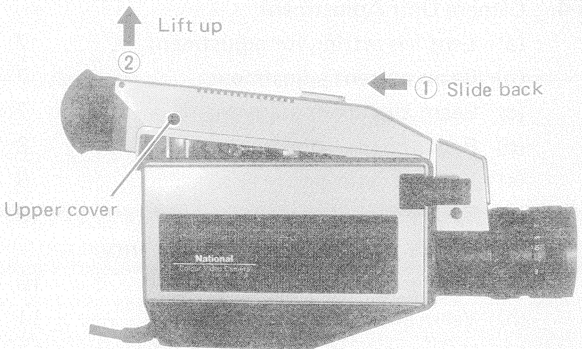

Lift up
②
① Slide back
Upper cover
National

Fig. 2-3

- Disconnect the microphone connector. (Fig. 2-4)

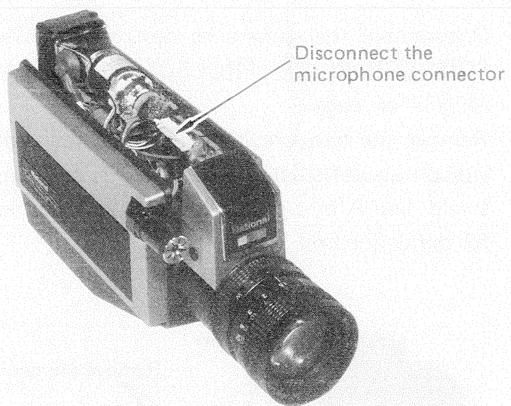

Disconnect the
microphone connector

Fig. 2-4

- Remove the two color adjustment (WHITE BALANCE) knobs on the right side cover (viewed from the front) by pulling them. (Fig. 2-5)

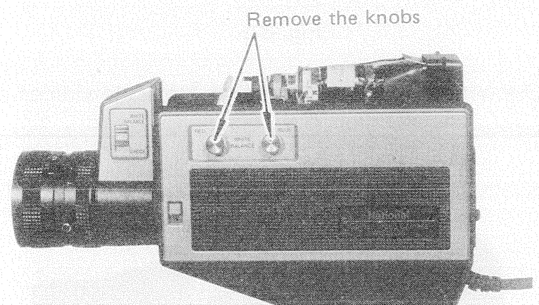

Remove the knobs

Fig. 2-5

- Remove the two screws on the bottom and remove both side covers by pulling outward. (Fig. 2-6)

Note: 1. When reassembling the covers, the left side cover (viewed from the front) should be mounted first.

2. When installing the right side cover, set the indoor-outdoor selection switch to the lower position.

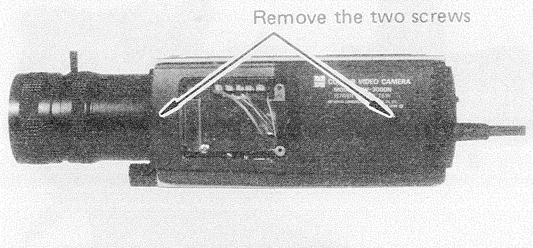

Remove the two screws

Fig. 2-6

In case the PCB holding jig (Parts No. YWFACX002) is used:

- Mount the camera unit onto the PCB holding jig with the two screws. (Figs. 2-7 & 2-8)

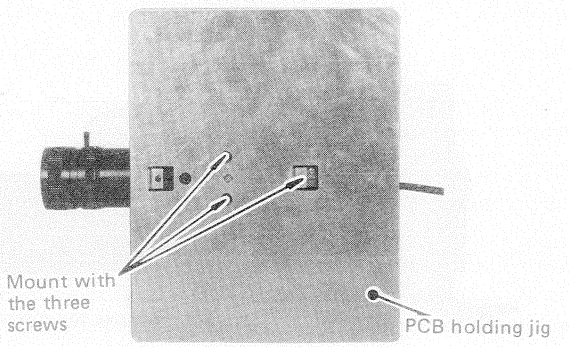

Mount with
the three
screws
PCB holding jig

Fig. 2-7

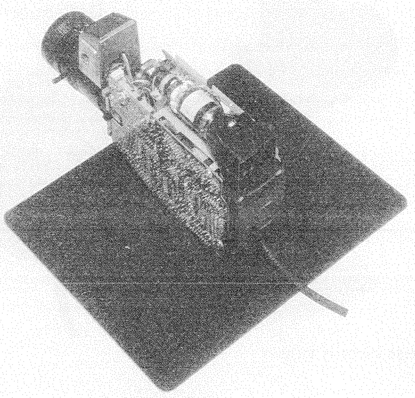
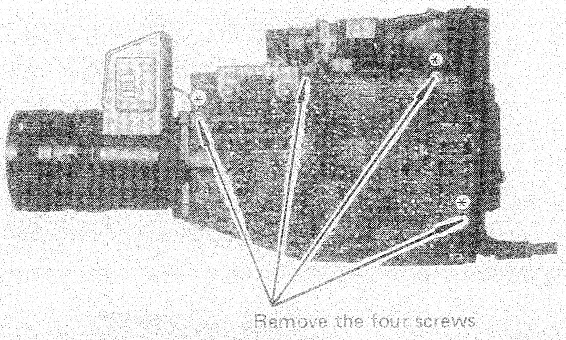


Fig. 2-8

- Remove the four screws on the Process circuit board in order to open the Process circuit board. (Fig. 2-9)


*
*
*
*
Remove the four screws

* When reinstalling the Process circuit board, make sure that the insulating washers are attached at the PCB.

Fig. 2-9

- Remove the one screw on the coil chassis (Fig. 2-10) and one screw on the Deflection circuit borad (Fig. 2-11) in order to open the Deflection circuit board together with the viewfinder section and rear cover.

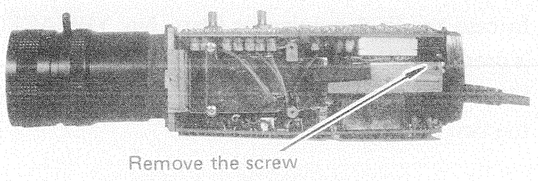

Remove the screw

Fig. 2-10

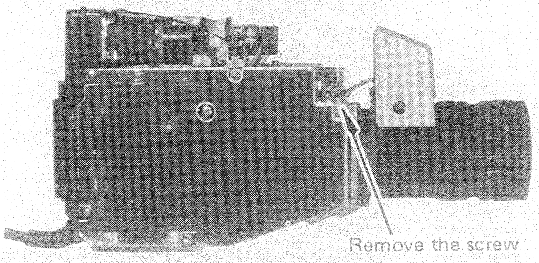

Remove the screw

Fig. 2-11

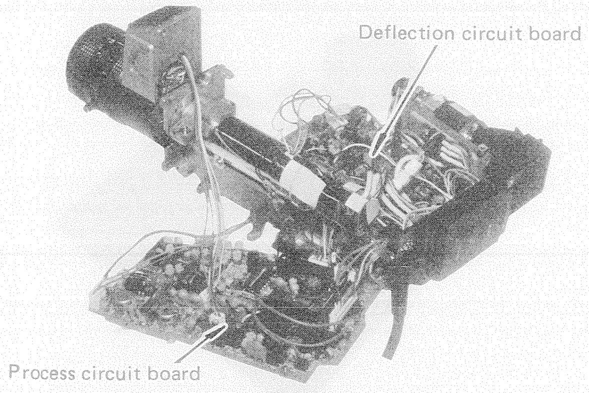

Deflection circuit board
Process circuit board

Fig. 2-12

Note:
1. When reassembling the circuit board, install the Deflection circuit board with the viewfinder and rear cover first.
2. When reassembling the Deflection circuit board, place the coupling connector beside IC103. (Fig. 2-13)
   When reassembling the Process circuit board, insert the wires from the sync circuit board between the Sync circuit board and vidicon socket shield case. (Fig. 2-13)

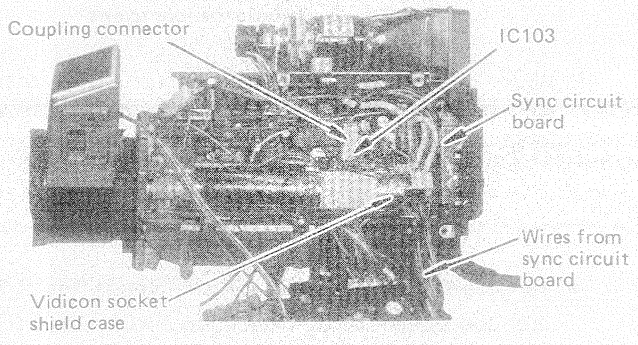

Coupling connector
IC103
Sync circuit board
Wires from sync circuit board
Vidicon socket shield case

Fig. 2-13

3. VIDICON REPLACEMENT

- Disassemble the camera as described in Section 2. "DISASSEMBLING PROCEDURE FOR ADJUSTMENT" on page 1.
- Remove the two screws on the coil guide, holding the vidicon socket shield case A and B, and remove the shield case A by unsoldering it from the shield plate for deflection coil. (Fig. 3-1)

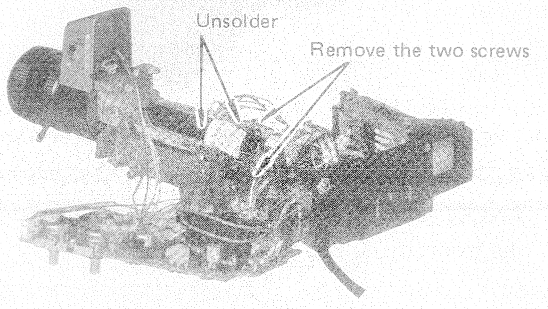

Unsolder
Remove the two screws

Fig. 3-1

- Disconnect the vidicon socket from the vidicon and remove the vidicon socket shield case B. (Fig. 3-2)

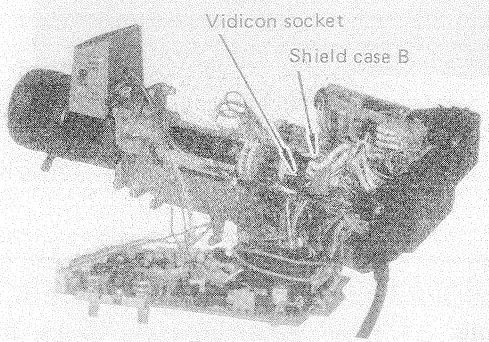

Vidicon socket
Shield case B

Fig. 3-2

- Disconnect the connectors CN202 and CN204 for the automatic iris control (AIC) zoom lens from the Process circuit board. (Fig. 3-3)

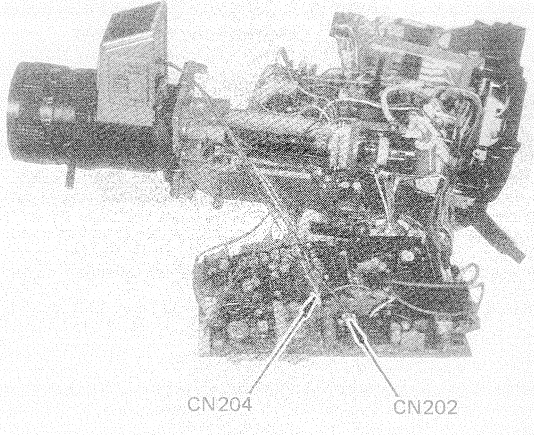

CN204
CN202

Fig. 3-3

- Remove the four screws which hold the lens unit onto the chassis, and remove the lens unit. (Fig. 3-4)

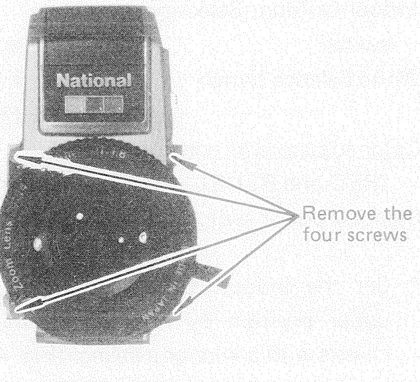

National
Zoom Lens
Remove the four screws

Fig. 3-4

- Remove the filter assembly by removing the two screws. (Fig. 3-5)

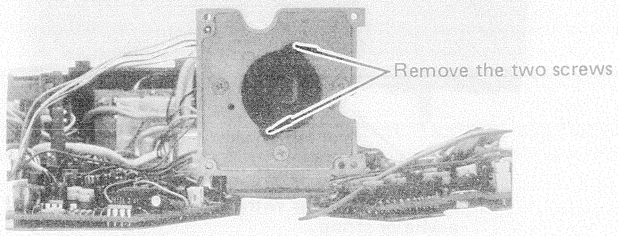

Remove the two screws

Fig. 3-5

- Loosen the vidicon holding screw (Fig. 3-6) and push the vidicon out (in the direction of the lens).

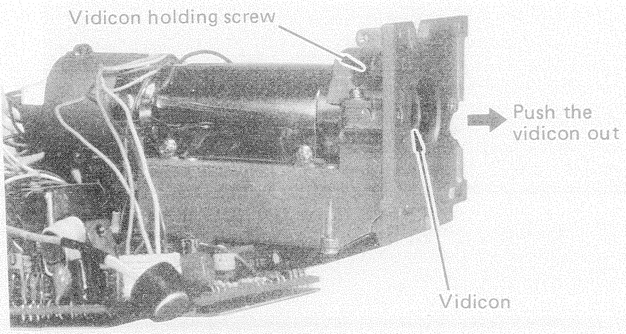

Vidicon holding screw
Push the vidicon out
Vidicon

Fig. 3-6

- Insert the new vidicon (parts No. S4094P) into the deflection coil and push it completely until it stops.

  Note: 1. When inserting the vidicon in place, be careful not to expose the target directly to bright light.

  2. Make sure that the vidicon is in the correct direction, i.e., the optical black on the vidicon is on the right and perpendicular to the horizontal line between the centers of the screws holding the lens mounting base as shown below. (Fig. 3-7)

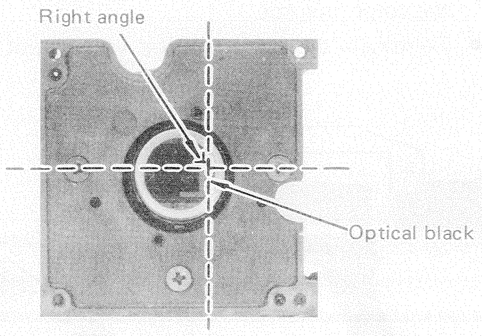

Right angle
Optical black

Fig. 3-7

- Tighten the vidicon holding screw (Fig. 3-6) to secure the vidicon in place.
- Clean the vidicon faceplate with the lens cleaning tissue or cloth.
- Install the filter assembly onto the chassis with the two screws. (Fig. 3-5)
- Mount the lens unit onto the chassis with the four screws (Fig. 3-4)
- Connect the connectors CN202 and CN204 for the automatic iris control (AIC) zoom lens to the Process circuit board. (Fig. 3-3)
- Install the vidicon socket shield case B and connect the vidicon socket. (Fig. 3-2)

  Note: The vidicon socket shield case A will be installed after the backfocus adjustment. (Fig. 3-8)

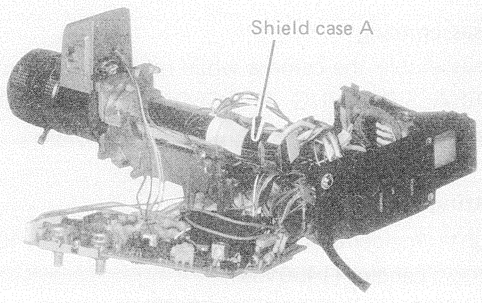

Shield case A

Fig. 3-8

- After replacing the vidicon, adjust the camera according to Section 4 "ADJUSTMENT PROCEDURE" on page 5.

4. ADJUSTMENT PROCEDURE

4-1. Connection and Setting Up for Adjustment

■ Connection

- Connect the camera cable from the camera to the power supply.
- Connect the video cable from the power supply to the color monitor.
- Terminate the color monitor video input in 75 ohms.

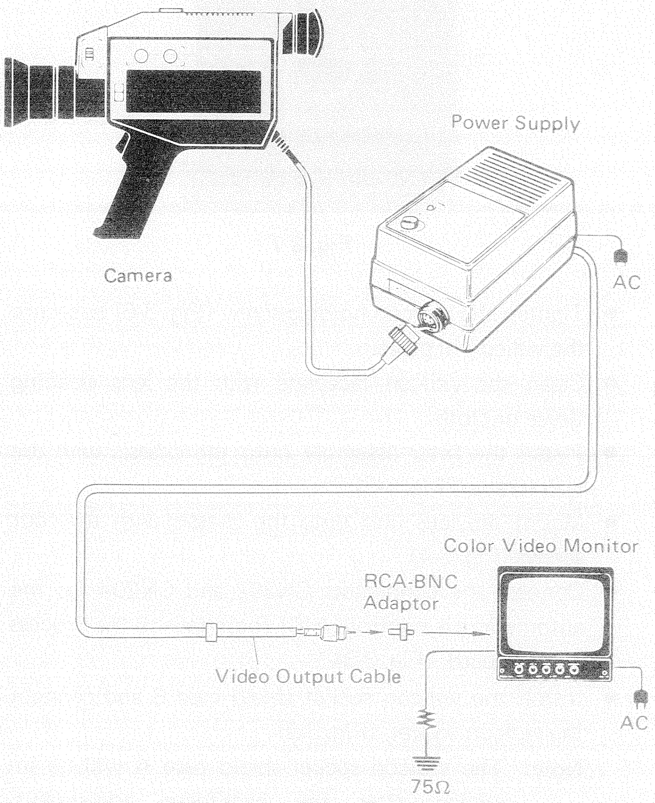


Fig. 4-1-1

■ Disassembling

- Disassemble the camera while referring to Section 2. "DISASSEMBLING PROCEDURE FOR ADJUSTMENT" on page 1.

■ Setting up

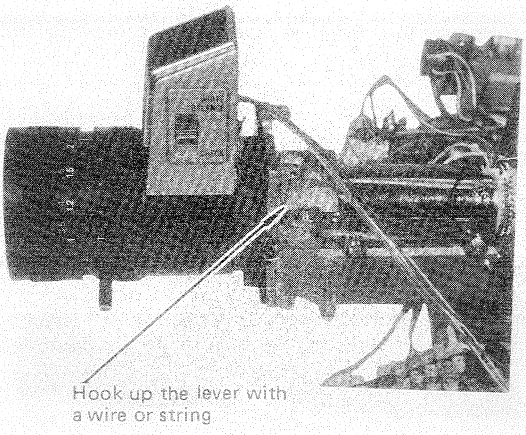
- Light: Incident light intensity on chart: 140 foot-candles (1400 lux)
  Color temperature: 3200° K
- Test Charts: Logarithmic gray scale chart (YWV2310RB99)
  Color chart (YWV2100RB98)
  Flat white chart
  Ball chart (YWV2100RB03)

■ Position of controls and switches on the camera

- Set the controls and switches on the camera as follows;

Indoor-Outdoor Selection switch	Upper position*
White balance switch	Upper position (WHITE BALANCE)
Color adjustments control (RED and BLUE)	Center position
Standby power switch	Upper (ON) position

* Set the Indoor-Outdoor selection switch to the upper position by hooking up the lever to the chassis with a wire or a string. (Fig. 4-1-2)



Hook up the lever with a wire or string

Fig. 4-1-2

Note: TP in this manual refers to a test point on the printed circuit board.

4-2. Power Supply Adjustment

Note: If a complete alignment is to be performed, proceed with the power supply adjustment first. If only a portion of the procedure is to be done, check the power supply voltage, but do not adjust unless it is in gross error (±0.1V).

- Refer to page 21 for the test point and adjusting control.

(a) +9V adjustment

Test point:	TP104 (+9V)	Deflection Board
Adjust:	VR108 (+9V ADJ)	〃 〃

- Connect the DVM probe to TP104.
- Adjust +9V ADJ VR108 for 9V ±0.02V.

4-3. Sync Circuit Board Adjustment

- Refer to page 6 and page 21 for the test points and adjusting controls.

(a) Disassembling for adjustment

- Turn the power OFF.
- Remove the three screws on the Deflection circuit board (Fig. 4-3-1) and remove the viewfinder section from the Deflection circuit board.

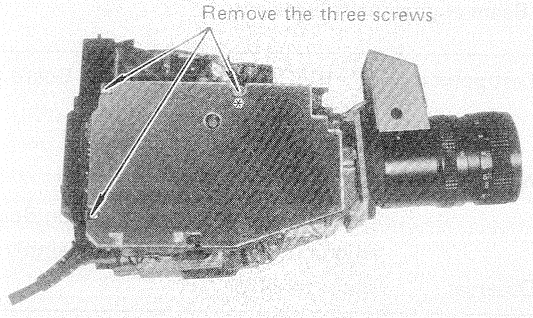


Fig. 4-3-1

* When reinstalling the Deflection circuit board, make sure that the insulating washer is attached at the PCB.

- Remove the three screws (Fig. 4-3-2) which hold the Sync circuit board to the rear cover and take out the circuit board. (Fig. 4-3-3)

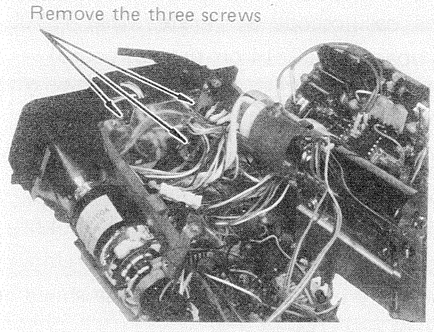


Fig. 4-3-2

Steps denoted by shaded outlines do not have to be performed if only vidicon is replaced.

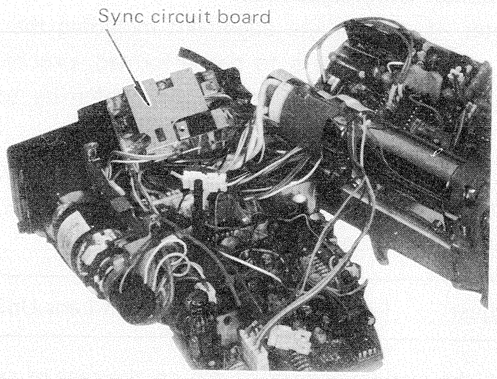


Fig. 4-3-3

(b) 4.43MHz adjustment

Test point:	TP202 (SC)	Process Board
Adjust:	VC301 (4.43MHz ADJ)	Sync Board

- Connect the frequency counter to TP202.
- Adjust 4.43MHz ADJ VC301 for 4.433618 MHz ±10Hz.

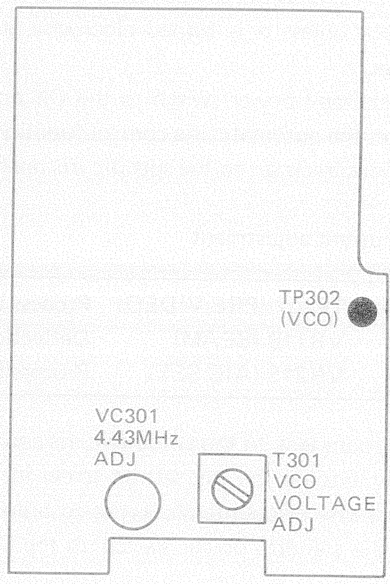
(c) VCO voltage adjustment

Test point:	TP302 (VCO)	Sync Board
Adjust:	T301 (VCO VOLTAGE ADJ)	〃

- Connect the DVM probe to TP302.
- Adjust VCO VOLTAGE ADJ T301 for 4 ±0.5V.
- After adjusting the above steps, assemble the Sync circuit board and viewfinder section. (See Figs. 4-3-2 & 4-3-1)

LOCATION OF TEST POINTS AND ADJUSTING CONTROLS

Sync Circuit Board



4-4. Camera Unit Adjustment

Note: If a complete alignment including the viewfinder unit is to be performed, proceed the viewfinder adjustment first referring to 4-5. Viewfinder Adjustment on page 22.

- Refer to page 21 for the test points and adjusting controls.

(a) Lens iris setting for adjustment

Adjust:	Iris setting screw	Zoom Lens Unit

- Set the standby power switch on the rear of camera to the STANDBY position.

  Note: Before setting the lens iris opening, the standby power switch on the camera must be set to the STANDBY position or the power switch on the power supply must be turned OFF.
- Remove the cap for the iris setting screw from the zoom lens unit. (Fig. 4-4-1)

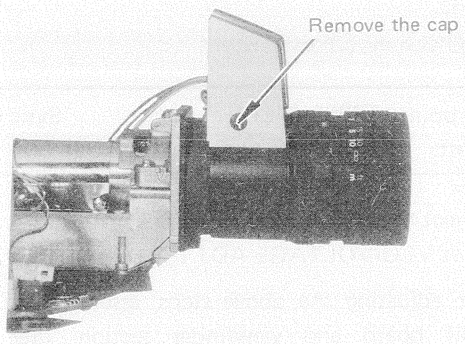


Fig. 4-4-1

- While pushing the iris setting screw (in the zoom lens unit) with the screw driver, turn the screw clockwise about 90 degrees by 90 degrees until it locks. When the iris setting screw is locked, the screw will not come back unless it is turned clockwise or counterclockwise.
- Set the standby power switch to the ON position. In this state, the automatic iris control function goes off and the lens iris is set to the specific iris opening.

(b) Beam current adjustment

Test point:	TP201 (PRE VIDEO)	Process Board
Adjusts:	VR118 (BEAM)	Deflection Board
	VR215 (AIC SET)	Process Board

- Set the zoom lens to the automatic iris control (AIC) mode by turning the iris setting screw in the zoom lens clockwise or counterclockwise to unlock it after setting the standby power switch to the STANDBY position.
- Set the standby power switch to the ON position.
- Turn AIC SET VR215 fully clockwise.
- Connect the oscilloscope to TP201.
- Trigger the oscilloscope at H.rate. (Use TP105 on deflection board, or TP214 on process board)
- If a horizontal magenta bar is observed on the monitor, turn H.CENTERING VR111 clockwise until the bar disappears.
- Aim the camera at the scene which contains a high intensity object.
- Adjust BEAM VR118 until the waveform is clipped at 2.4Vp-p. (Fig. 4-4-2) If the signal does not increase up to 2.4Vp-p, aim the camera at a brighter object.

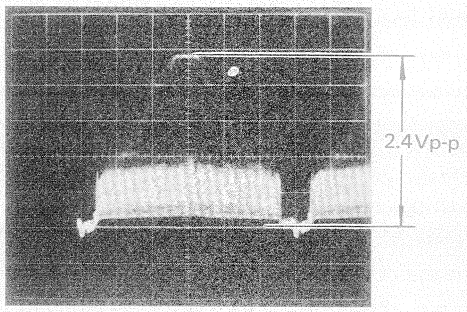


Fig. 4-4-2

(c) Beam alignment adjustment

Test points:	TP210 (B)	Process Board
	TP208 (R)	″ ″
	TP203 (+3.3V)	″ ″
Adjust:	VR120 (CAMERA FOCUS)	Deflection Board
	Alignment magnets	Coil Assembly
Observe:	Color monitor	

- Set the lens iris referring to (a) Lens iris setting for adjustment on page 7.
- Disconnect the connector CN207 for the automatic gain control (AGC) from the Process circuit board and connect a jumper wire between pin 2 of CN207 and TP203 (+3.3V).
- Aim the camera at the white chart.
- Connect the oscilloscope to TP210(B) and TP208(R).
- Trigger the oscilloscope at H.rate. (Use TP105 on deflection board, or TP214 on process board)
- Turn DYNAMIC FOCUS VR103, VR104, VR105 and VR106 to their mechanical center.
- Also turn SIGNAL SHADING VR208 to VR211 and VR223 to VR226 to their mechanical center.
- Remove the two screws on the coil guide, holding the vidicon socket shield case A and B, and remove the shield case A by unsoldering it from the shield plate for deflection coil. (Fig. 4-4-3)

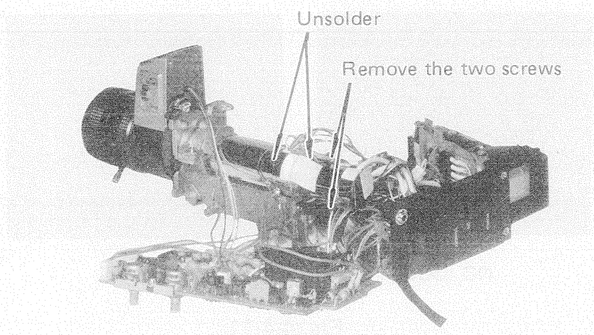
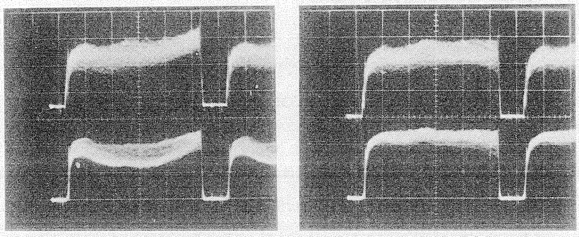


Fig. 4-4-3

- While observing the color monitor, adjust CAMERA FOCUS VR120 for minimum green tint in the center.
  At this time, the center portion of B and R signal waveforms at TP210 and TP208 become maximum. (Fig. 4-4-4)



NO GOOD GOOD

Fig. 4-4-4

- Then while watching the color monitor, rotate the alignment magnets (see Fig. 4-4-5) for minimum green tint in the center and maximum magenta (red) throughout the picture area.
  At this time, the waveform peaks of B and R signals are same in phase and maximum in amplitude. (Fig. 4-4-6)

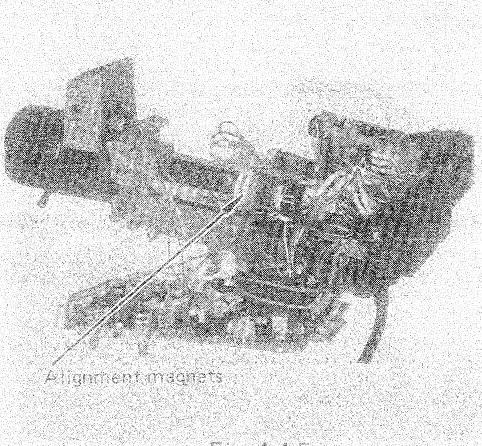
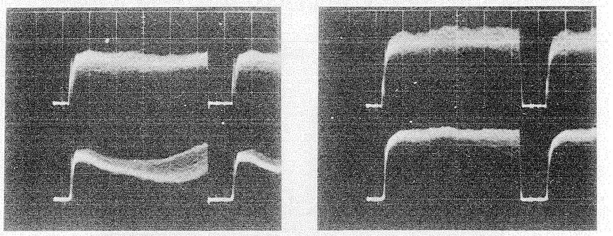


Fig. 4-4-5



NO GOOD GOOD

Fig. 4-4-6

- Overall focus is affected by the beam alignment adjustment so readjust CAMERA FOCUS VR120 occasionally while performing beam alignment adjustment.
- If a bright green area appears at the corner of the monitor, readjust the beam alignment with the alignment magnets.
- If green tinted areas still remain after repeating the beam alignment, they will be minimized by the dynamic focus and signal shading adjustments which follow.

(d) Focus coarse adjustment

Adjust:	VR120 (CAMERA FOCUS)	Deflection Board
Observe:	Color monitor	

- Keep the lens iris set as in the preceding step.
- Keep connecting the jumper wire as in the preceding step.
- Aim the camera at the white chart.
- While observing the color monitor, adjust CAMERA FOCUS VR120 for minimum green tint and maximum magenta (red) throughout picture area.
- If bright green area appears at the corner of the monitor, readjust the beam alignment while referring to "(c) Beam alignment adjustment" on page 7.
- If green tinted areas still remain after repeating the beam alignment, they will be minimized by the dynamic focus and signal shading adjustment which follow.

(e) Vidicon rotation

Test point:	Pin 3 of IC202 (Rc/Bc)	Process Board
Adjust:	Vidicon	

- Keep setting the lens iris and connecting the jumper wire as in the preceding step.
- Remove the two screws which hold the vidicon socket shield case A and B and remove the shield case A by unsoldering it from the shield plate for deflection coil. (Fig. 4-4-3)

- Loosen the vidicon holding screw. (Fig. 4-4-8)

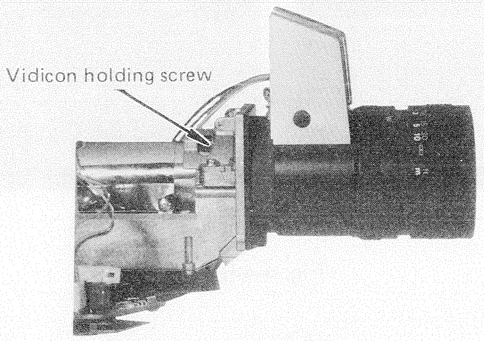


Fig. 4-4-8

- Aim the camera at the white chart.
- Connect the oscilloscope to pin 3 of IC202 on the process circuit board.
- Trigger the oscilloscope at V.rate. (Use TP213 on process board)
- Use the delayed sweep mode of oscilloscope to line-select 2H periods from the center of the waveform. (Fig. 4-4-9)

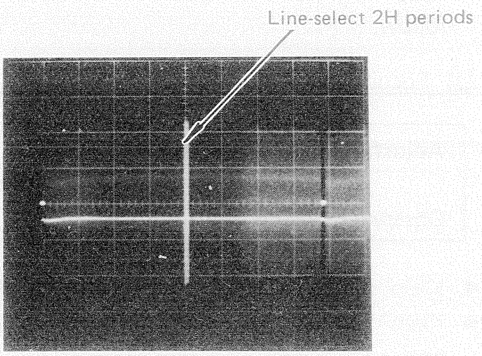


Fig. 4-4-9

- Rotate the vidicon by means of the vidicon socket (Fig. 4-4-10) (CAUTION, 1600V DC) and stop at the point where the waveform becomes as flat as possible. (Fig. 4-4-11)
  Ideally, the waveform should show one flat envelope of lesser amplitude and one of greater amplitude, each with a period of 1H.
  Note: Do not push the vidicon forward while rotating it.

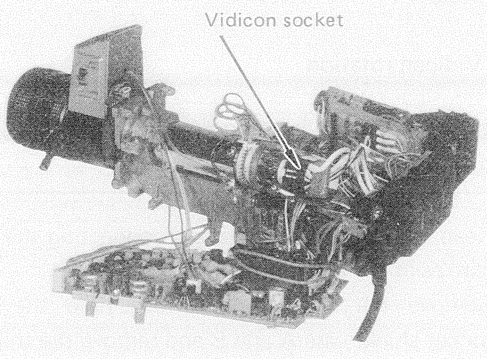
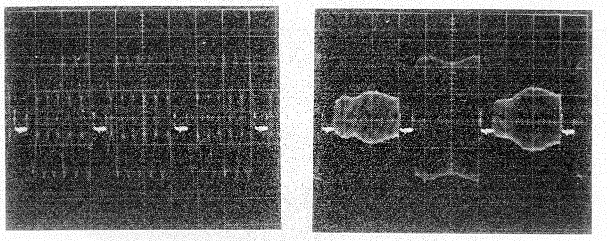


Fig. 4-4-10



NO GOOD GOOD

Fig. 4-4-11

- Carefully tighten the vidicon holding screw and make sure that the waveform remains properly adjusted.
- Install the vidicon socket shield case A with the two screws and resolder it after adjusting (f) Backfocus adjustment in the next step.

(f) Backfocus adjustment

Adjust:	Backfocus adjusting mechanism
Observe:	Color monitor

- Set the zoom lens to the automatic iris control (AIC) mode by turning the iris setting screw in the zoom lens clockwise or counterclockwise to unlock it after setting the standby power switch to the STANDBY position.
- Remove the two screws which hold the vidicon socket shield case A and B, and remove the shield case A by unsoldering it from the shield plate for deflection coil. (Fig. 4-4-3)
- Set the standby power switch to the ON position.
- Lower the lighting level so that the lens iris opens fully in order to have minimum depth of focus.
- Aim the camera at an object further than 6 feet (2m) from the camera.
- Loosen the two backfocus fixing screws slightly. (Fig. 4-4-12)

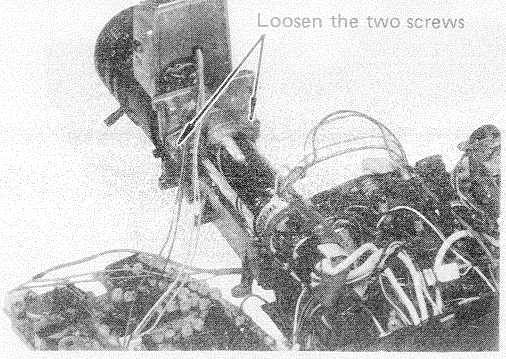


Fig. 4-4-12

- Zoom in (close up/telephoto) and adjust the lens focus.
- Zoom out (wide angle) and adjust the focus by moving the backfocus adjusting mechanism using a flat screw driver. (Fig. 4-4-13)

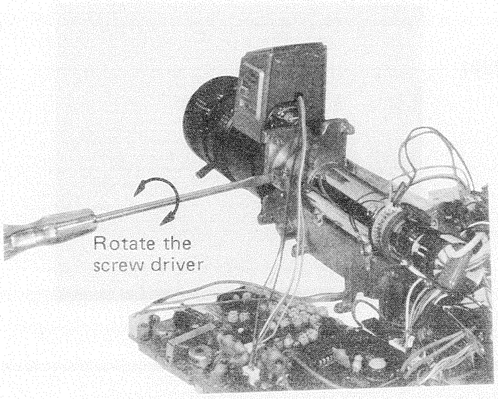


Fig. 4-4-13

- Zoom in again and adjust the focus by turning the lens focus.
- Zoom out again and adjust the focus by moving the backfocus adjusting mechanism with the driver.
- Repeat this procedure until the focus tracks throughout the zoom range.
- Install the vidicon socket shield case A and B with the two screws and resolder the shield case A to the shield plate for deflection coil. (Fig. 4-4-3)

(g) **Horizontal size, horizontal linearity and vertical size adjustment**

Test points:	TP204 (Y)	Process Board
	Pin 3 of IC202 (Rc/Bc)	〃 〃
Adjust:	VR109 (CAMERA H. SIZE)	Deflection Board
	VR110 (CAMERA H. LIN)	〃 〃
	VR112 (CAMERA V. SIZE)	〃 〃

- Set the lens iris referring to (a) Lens iris setting for adjustment on page 7.
- Aim the camera at the white chart.
- Connect the oscilloscope to TP204.
- Trigger the oscilloscope at H.rate. (Use TP105 on deflection board, or TP214 on process board)
- Adjust CAMERA H.SIZE VR109 so that the carrier (3.58MHz) on the Y signal at TP204 is minimum. (Fig. 4-4-14)

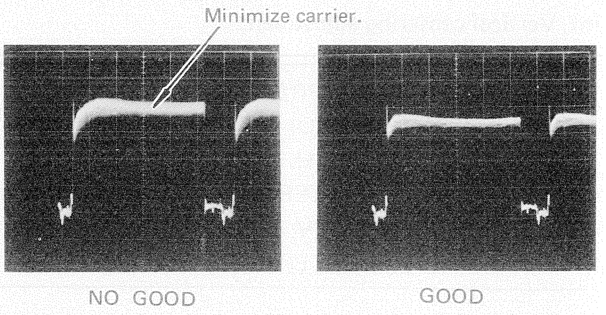


Fig. 4-4-14

- Adjust CAMERA H.LIN VR110 so that the carrier (3.58MHz) on the starting portion of Y signal at TP204 is minimum (Fig. 4-4-15) and the starting portion of Y signal becomes as flat as possible.
  At this time, the picture will have minimum disturbance (color shading) on the left side of the color monitor.

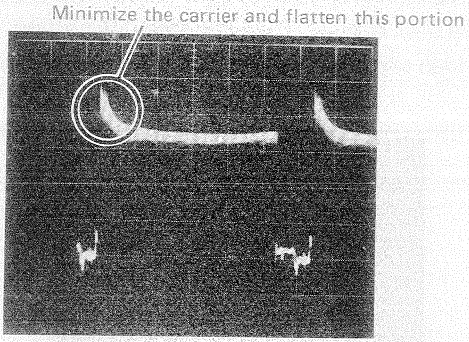


Fig. 4-4-15

- Repeat adjusting CAMERA H.SIZE VR109 and CAMERA H.LIN VR110 until the carrier on the Y signal is minimum, the starting portion of Y signal is flat and the picture has minimum disturbance on the left side.
- Connect the oscilloscope to pin 3 of IC202 on the Process circuit board.
- Trigger the oscilloscope at V.rate. (Use TP213 on process board)
- Adjust CAMERA V.SIZE VR112 for minimum beat during the vertical period. (Fig. 4-4-16)

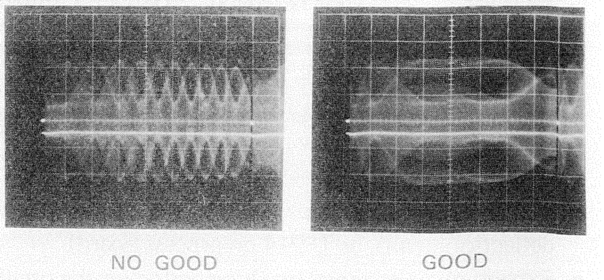


Fig. 4-4-16

(h) Vertical centering adjustment

Test point:	TP201 (PRE VIDEO)	Process Board
Adjust:	VR111 (H. CENTERING)	Deflection Board
	VR113 (V. CENTERING)	〃 〃

- Keep setting the lens iris and connecting the jumper wire as in the preceding step.
- Aim the camera at the white chart.
- Connect the oscilloscope to TP201.
- Trigger the oscilloscope at V.rate. (Use TP213 on process board)
- Turn H. CENTERING VR111 fully counterclockwise. Note that the optical black clamp may disturb the picture.
- While observing the waveform, adjust V. CENTERING VR113 so that the marker which shows the vertical center of vidicon positions at the center of video signal waveform in vertical rate. (Fig. 4-4-17)

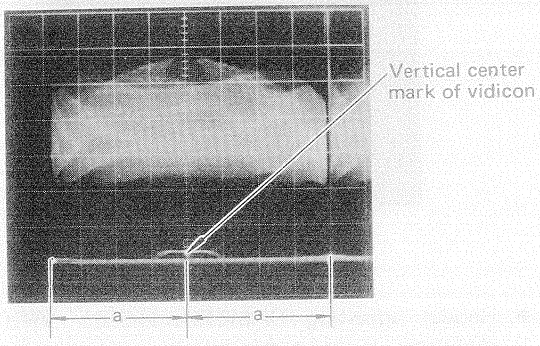


Fig. 4-4-17

- Turn H. CENTERING VR111 back until the magenta tint disappears.

(i) Horizontal centering adjustment

Test points:	TP105 (Hs)	Deflection Board
	TP201 (PRE VIDEO)	Process Board
Adjust:	VR111 (H. CENTERING)	Deflection Board

- Keep setting the lens iris and connecting the jumper wire as in the preceding step.
- Aim the camera at the white chart.
- Connect the oscilloscope to TP201 and TP105.
- Trigger the oscilloscope at H.rate. (Use TP105 on deflection board, or TP214 on process board)
- Expand the horizontal blanking period on the oscilloscope.
- Adjust H. CENTERING VR111 until the optical black width is 3.5μsec. (Fig. 4-4-18)
If the falling edge of the waveform corresponding to the picture area is noisy, adjust for the middle.

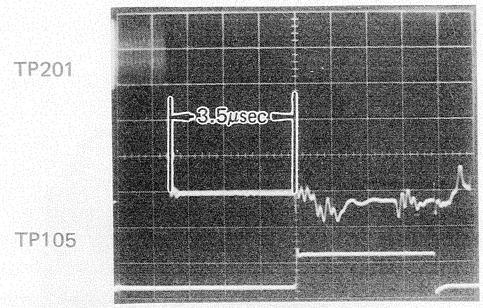


Fig. 4-4-18

(j) Dark current and dark shading adjustment

Test point:	TP201 (PRE VIDEO)	Process Board
Adjusts:	VR101 (H. PARABOLA)	Deflection Board
	VR102 (H. SAWTOOTH)	〃 〃
	VR114 (TARGET)	〃 〃

- Keep setting the lens iris and connecting the jumper wire as in the preceding step.
- Cap on the lens after aiming the camera at the white chart for a while (about 30 seconds) until the burning image on the vidicon disappears.
- Connect a 1:1 probe of the oscilloscope to TP201.
- Trigger the oscilloscope at V.rate. (Use TP213 on process board)
- Adjust TARGET VR114 so that the dark current is 50mV. (Fig. 4-4-19)
Note: If there is dark shading, adjust the level at the center of the waveform.

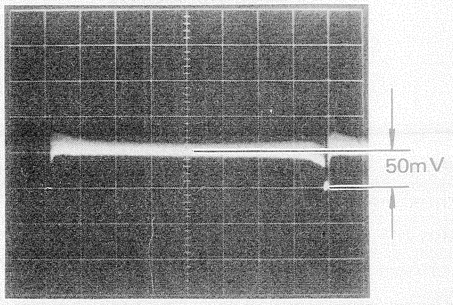


Fig. 4-4-19

- Trigger the oscilloscope at H.rate. (Use TP105 on deflection board, or TP214 on process board)
- While watching the waveform, adjust DARK SHADING, H. PARABOLA VR101 and H. SAWTOOTH VR102 to make the dark current waveform as flat as possible. (Fig. 4-4-20)

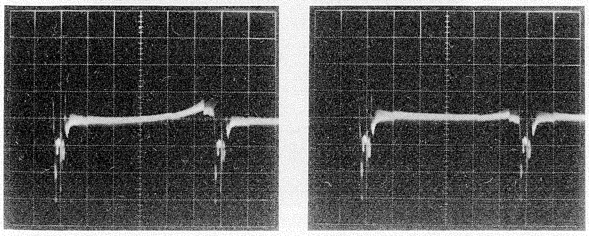

NO GOOD GOOD

Fig. 4-4-20

- After the above adjustment, trigger the oscilloscope at V.rate again. (Use TP213 on process board)
- Confirm that the dark current in the middle of waveform is 50mV. If not, readjust TARGET VR114 for 50mV.

(k) Beam current readjustment

- Adjust the beam current while referring to (b) Beam current adjustment on page 7.

(l) Dynamic focus adjustment

Adjusts:	VR120 (CAMERA FOCUS)	Deflection Board
	VR103 (H. SAWTOOTH)	〃 〃
	VR104 (H. PARABOLA)	〃 〃
	VR105 (V. PARABOLA)	〃 〃
	VR106 (V. SAWTOOTH)	〃 〃
Observe:	Color monitor	

- Keep setting the lens iris and connecting the jumper wire as in the preceding step.
- Aim the camera at the white chart.
- Observe the color monitor, and adjust CAMERA FOCUS VR120 for minimum green in the center and maximum magenta (red) throughout the picture area.
- Observe the color monitor and adjust for the best white balance at the center of the screen using the color adjustment (RED/BLUE) controls on the side of the camera.
- Increase the color monitor's chroma gain for better viewing.

  Make sure that the color monitor is converged properly.
- Adjust DYNAMIC FOCUS, H. SAWTOOTH VR103, H. PARABOLA VR104, V. PARABOLA VR105 and V. SAWTOOTH VR106 to minimize the green tint in the corners and edges of picture.

  Note:
  1. Overall focus is affected by the dynamic focus adjustment so readjust FOCUS VR120 occasionally while performing the dynamic focus adjustment.
  2. The object of this adjustment is to optimize overall focus, especially at the picture edges and corners.

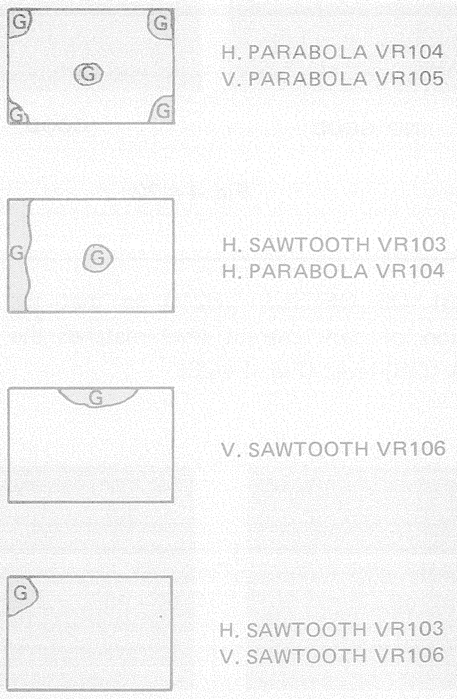


Fig. 4-4-21

(m) Optical black (OB) correction and OB offset adjustment

Test point:	TP204 (Y)	Process Board
Adjusts:	VR217 (OB CORRECTION-SAW)	〃 〃
	VR218 (OB CORRECTION-PARA)	〃 〃
	VR219 (OB OFFSET)	〃 〃

- Keep the lens iris set as in the preceding step.
- Disconnect the jumper wire between pin 2 of CN207 and TP203 on the process circuit board.

- Cap on the lens after aiming the camera at the white chart for a while (about 30 seconds) until burning image on the vidicon disappears.
- Connect the oscilloscope to TP204.
- Trigger the oscilloscope at H.rate. (Use TP105 on deflection board, or TP214 on process board)
- Adjust OB CORRECTION-SAW VR217 and OB CORRECTION-PARA VR218 so that the top portion of dark signal waveform becomes as narrow as possible. (Fig. 4-4-22)

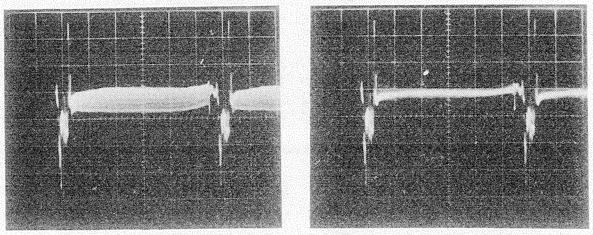
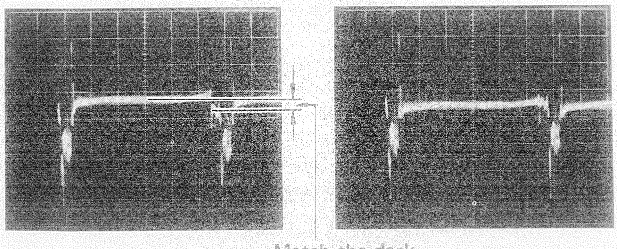

NO GOOD GOOD

Fig. 4-4-22

- Adjust OB OFFSET VR219 so that the center portion of dark current level matches the optical black (OB) level. (Fig. 4-4-23)


NO GOOD

Match the dark current and OB level.

GOOD

Fig. 4-4-23

(n) Input level adjustment

Test point:	TP204 (Y)	Process Board
Adjusts:	VR201 (INPUT GAIN)	〃 〃
	VR215 (AIC SET)	〃 〃

- Keep the lens iris set as in the preceding step.
- Connect the jumper wire between pin 2 of CN207 and TP203.
- Aim the camera at the logarithmic gray scale chart.
- Connect the oscilloscope to TP204.
- Trigger the oscilloscope at H.rate. (Use TP105 on deflection board, or TP214 on process board)

Steps denoted by shaded outlines do not have to be performed if only vidicon is replaced.

- Adjust INPUT GAIN VR201 so that the voltage between the OB level and the fourth step (one step below the crossing step) of the gray scale waveform is 0.2V. (Fig. 4-4-24)

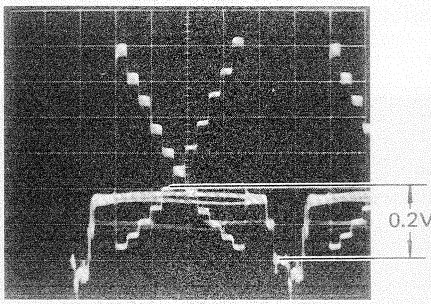


Fig. 4-4-24

- Set the zoom lens to the automatic iris control (AIC) mode by turning the iris setting screw in the zoom lens clockwise or counterclockwise to unlock it after setting the standby power switch to the STANDBY position.
- Set the standby power switch to the ON position.
- Adjust AIC SET VR215 so that the voltage between the OB level and the fourth step (one step below the crossing step) of the gray scale waveform is about 0.4V. (Fig. 4-4-25)

  Note: This is the presetting for B and R signal tracking-3 adjustment.

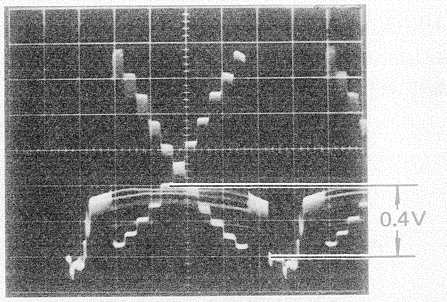


Fig. 4-4-25

(o) Vertical edge balance adjustment

Test point:	TP216 (V. EDGE)	Process Board
Adjust:	VR230 (V. EDGE BALANCE)	〃 〃

- Set the lens iris referring to (a) Lens iris setting for adjustment on page 7.
- Keep connecting the jumper wire as in the preceding step.
- Aim the camera at the logarithmic gray scale chart.
- Connect the oscilloscope to TP216.

- Trigger the oscilloscope at H.rate. (Use TP105 on deflection board, or TP214 on process board)
- Adjust V. EDGE BALANCE VR230 to cancel the video signal. (Fig. 4-4-26)

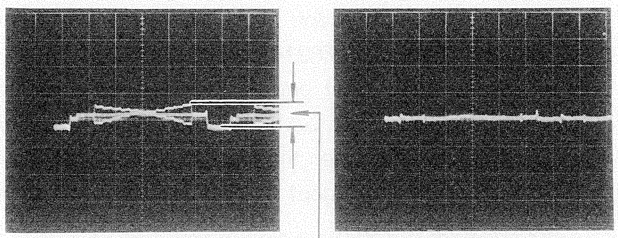

NO GOOD Cancel video signal GOOD

Fig. 4-4-26

(p) Y gain adjustment

Test point:	Pin 2 of CN205 or PAL output	 Process Board
Adjust:	VR205 (Y. GAIN)	″ ″

- Keep setting the lens iris and connecting the jumper wire as in the preceding step.
- Aim the camera at the logarithmic gray scale chart.
- Connect the oscilloscope to pin 2 of CN205 or PAL output.
- Trigger the oscilloscope at H.rate. (Use TP105 on deflection board, or TP214 on process board)
- Adjust Y. GAIN VR205 for 0.71V from the blanking level to the top step of the gray scale waveform. (Fig. 4-4-27)

  Note: If it is difficult to read the signal level due to the carrier signal, turn TRACKING-3 SET VR202 fully counterclockwise to minimize the carrier signal. After adjusting Y. GAIN VR205, turn VR202 fully clockwise.

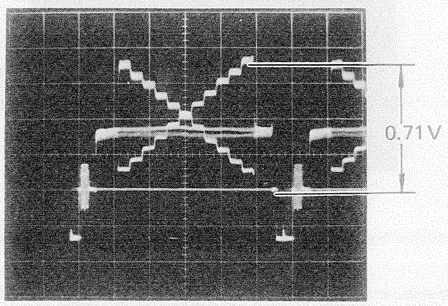


Fig. 4-4-27

(q) R and B signal separation adjustment

Test points:	TP210 (B)	Process Board
	TP208 (R)	″ ″
Adjusts:	VC201 (Rc/Bc SEPARATION-1)	″ ″
	VR206 (Rc/Bc SEPARATION-2)	″ ″

- Keep setting the lens iris and connecting the jumper wire as in the preceding step.
- Aim the camera at the logarithmic gray scale chart.
- Connect the oscilloscope to TP210(B) and TP208(R).
- Trigger the oscilloscope at H.rate. (Use TP105 on deflection board, or TP214 on process board)
- Adjust Rc/Bc SEPARATION-1 VC201 for minimum waveform flicker (especially B signal at TP210). (Fig. 4-4-28)
- Adjust Rc/Bc SEPARATION-2 VR206 for the same condition.
- Repeat adjusting VC201 and VR206 until the flicker in both waveform is minimum.

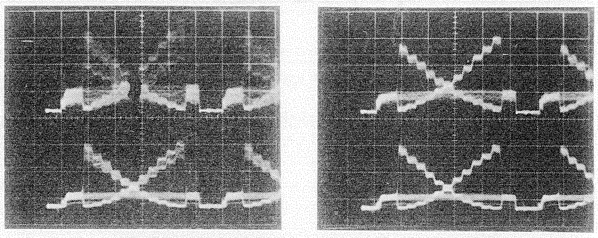

NO GOOD GOOD

Fig. 4-4-28

(r) B gain and Y_L pedestal preset adjustment

Test points:	TP210 (B)	Process Board
	TP209 (Y_L)	″ ″
Adjusts:	VR203 (Rc/Bc GAIN)	″ ″
	VR204 (Y_L PED)	″ ″

- Keep setting the lens iris and connecting the jumper wire as in the preceding step.
- Aim the camera at the logarithmic gray scale chart.
- Connect the oscilloscope to TP210(B) and TP209(Y_L).
- Trigger the oscilloscope at H.rate. (Use TP105 on deflection board, or TP214 on process board)
- Set the color adjustment (RED/BLUE) controls on the side of the camera to the center position.
- Turn B. TRACKING-1 VR228, B. TRACKING-2 VR227, R. TRACKING-1 VR213 and R. TRACKING-2 VR212 to their mechanical center.

- Turn B. TRACKING-3 VR229, R. TRACKING-3 VR214 and TRACKING-3 SET VR202 fully clockwise.
- Overlay the B. signal and Y_L signal on the oscilloscope, and adjust Rc/Bc GAIN VR203 so that the signal level between the black chip (zero step) and fifth step (crossing step) of the gray scale waveform match. (Fig. 4-4-29)

  Note: Before adjusting VR203, if the gray scale's black chip of Y_L signal is suppressed, turn Y_L PED VR204 until the black chip of Y_L signal can be observed.

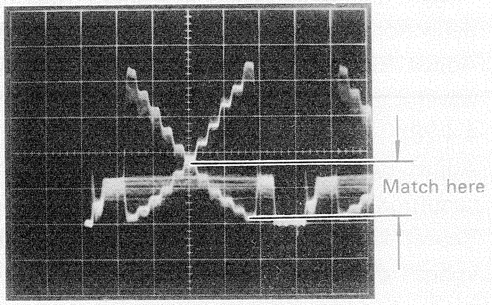


Fig. 4-4-29

- Next, adjust Y_L PED VR204 so that the pedestal level of Y_L signal matches that of B signal. (Fig. 4-4-30)

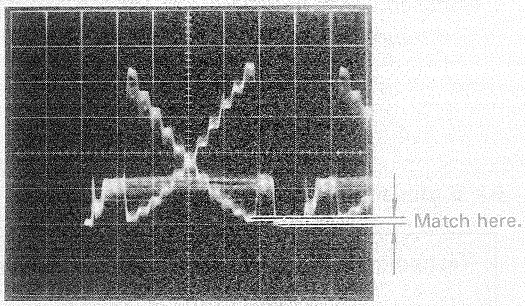


Fig. 4-4-30

- Repeat adjusting VR203 and VR204 until the signal level between the black chip (zero step) and fifth step (crossing step), and pedestal level of gray scale waveforms match.

(s) R gain and R pedestal preset adjustment

Test points:	TP208 (R)	Process Board
	TP209 (Y_L)	" "
Adjusts:	VR220 (R. GAIN PRESET)	" "
	VR207 (R. PED)	" "

- Keep setting the lens iris and connecting the jumper wire as in the preceding step.
- Aim the camera at the logarithmic gray scale chart.
- Connect the oscilloscope to TP208(R) and TP209(Y_L).
- Trigger the oscilloscope at H.rate. (Use TP105 on deflection board, or TP214 on process board)
- Overlay the R signal and Y_L signal on the oscilloscope, and adjust R. GAIN PRESET VR220 so that the signal level between the black chip (zero step) and fifth step (crossing step) of the gray scale waveform match. (Fig. 4-4-31)

  Note: Before adjusting VR220, if the gray scale's black chip of R signal is suppressed, turn R. PED VR207 until the black chip of R signal can be observed.

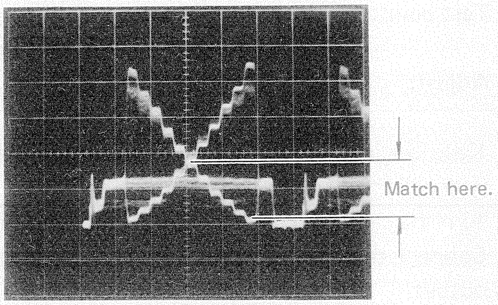


Fig. 4-4-31

- Next, adjust R. PED VR207 so that the pedestal level of R signal matches that of Y_L signal. (Fig. 4-4-32)

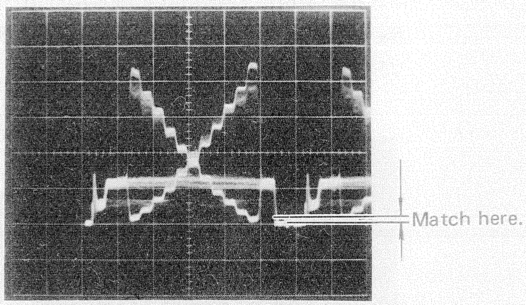


Fig. 4-4-32

- Repeat adjusting VR220 and VR207 until the signal level between the black chip (zero step) and fifth step (crossing step), and pedestal level of gray scale waveforms match.

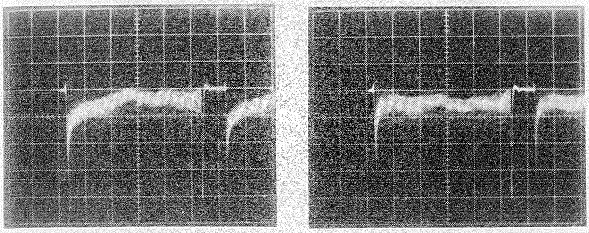
(t) Signal shading adjustment

Test points:	TP210 (B)	Process Board
	TP208 (R)	〃 〃
	TP209 (Y_L)	〃 〃
Adjusts:	VR208 (R-V. PARABOLA)	〃 〃
	VR209 (R-V. SAWTOOTH)	〃 〃
	VR210 (R-H. PARABOLA)	〃 〃
	VR211 (R-H. SAWTOOTH)	〃 〃
	VR223 (B-V. PARABOLA)	〃 〃
	VR224 (B-V. SAWTOOTH)	〃 〃
	VR225 (B-H. PARABOLA)	〃 〃
	VR226 (B-H. SAWTOOTH)	〃 〃

- Keep setting the lens iris and connecting the jumper wire as in the preceding step.
- Aim the camera at the white chart.

■ R signal shading adjustment

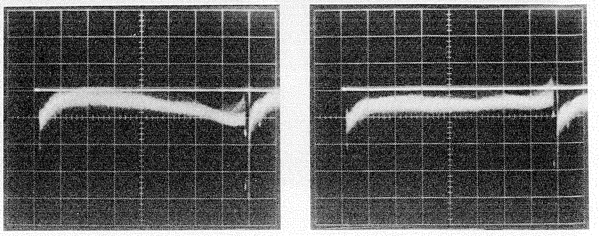
- Connect the oscilloscope to TP209(Y_L) (ch1) and TP208(R) (ch2).
- Trigger the oscilloscope at H.rate. (Use TP105 on deflection board, or TP214 on process board)
- Invert ch2 (R, TP208) on the oscilloscope.
- Set the oscilloscope to ADD mode and observe the Y_L-R signal thus produced.
- Adjust R-H. PARABOLA VR210 and R-H SAWTOOTH VR211 to make the waveform as flat as possible. (Fig. 4-4-33)



NO GOOD GOOD

Fig. 4-4-33

- Trigger the oscilloscope at V.rate. (Use TP213 on process board)
- Adjust R-V. PARABOLA VR208 and R-V. SAWTOOTH VR209 to make the waveform as flat as possible. (Fig. 4-4-34)



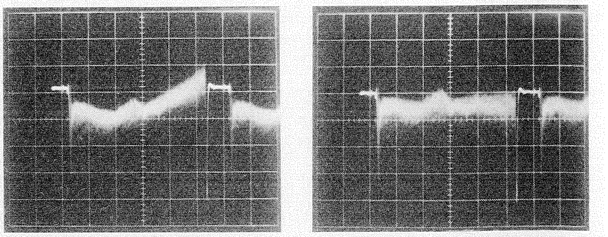
NO GOOD GOOD

Fig. 4-4-34

- Reset the Invert/Normal ch2 switch on the oscilloscope to Normal, and set to the Alternate mode.

■ B signal shading adjustment

- Connect the oscilloscope to TP209(Y_L) (ch1) and TP210(B) (ch2).
- Trigger the oscilloscope at H.rate. (Use TP105 on deflection board, or TP214 on process board)
- Invert ch2 (B, TP210) on the oscilloscope.
- Set the oscilloscope to ADD mode and observe the Y_L-B signal thus produced.
- Adjust B-H. PARABOLA VR225 and B-H. SAWTOOTH VR226 to make the waveform as flat as possible. (Fig. 4-4-35)



NO GOOD GOOD

Fig. 4-4-35

- Trigger the oscilloscope at V.rate. (Use TP213 on process board)
- Adjust B-V. PARABOLA VR223 and B-V. SAWTOOTH VR224 to make the waveform as flat as possible. (Fig. 4-4-36)

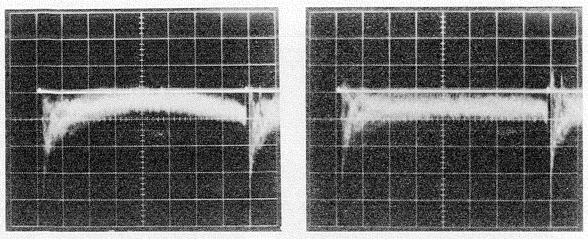

NO GOOD GOOD

Fig. 4-4-36

- Reset the Invert/Normal ch2 switch on the oscilloscope to Normal, and set the oscilloscope to the Alternate mode.

(u) Y_L and B signal tracking adjustment

Test points:	TP210 (B)	Process Board
	TP209 (Y_L)	″ ″
Adjusts:	VR203 (Rc/Bc GAIN)	″ ″
	VR204 (Y_L PED)	″ ″
	VR227 (B. TRACKING-2)	″ ″
	VR228 (B. TRACKING-1)	″ ″

- Keep setting the lens iris and connecting the jumper wire as in the preceding step.
- Confirm that B. TRACKING-3 VR229, R. TRACKING-3 VR214 and TRACKING-3 SET VR202 are turned fully clockwise, and B. TRACKING-2 VR227 and B. TRACKING-1 VR228 are set to their mechanical center.
- Aim the camera at the logarithmic gray scale chart.
- Connect the oscilloscope to TP210(B) and TP209(Y_L).
- Trigger the oscilloscope at H. rate. (Use TP105 on deflection board, or TP214 on process board)
- Overlay the B signal and the Y_L signal on the oscilloscope, and confirm that the signal level between the black chip (zero step) and fifth step (crossing step) of the gray scale waveforms match. If not, adjust Rc/Bc GAIN VR203 to match them. (Fig. 4-4-37)

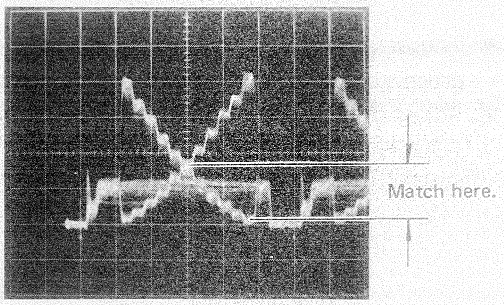


Fig. 4-4-37

- Adjust B. TRACKING-1 VR228 so that the B signal matches the Y_L signal in the lower half of the gray scale waveform. (Fig. 4-4-38)

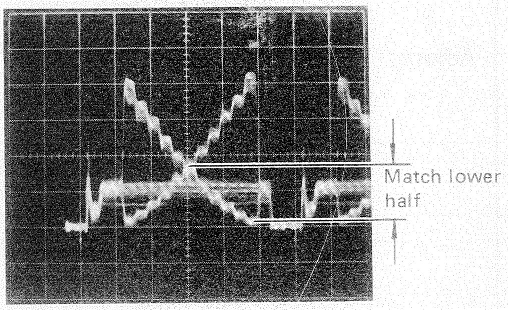


Fig. 4-4-38

- Adjust Y_L PED VR204 so that the pedestal level of Y_L signal matches that of B signal. (Fig. 4-4-39)

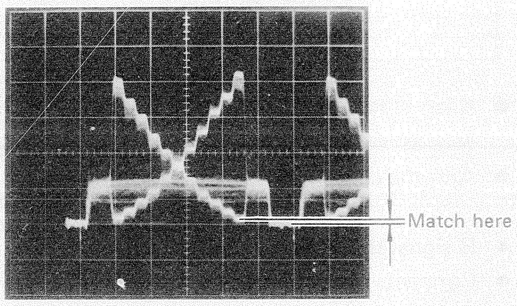


Fig. 4-4-39

- Adjust B. TRACKING-2 VR227 so that the B signal matches the Y_L signal in the 8th ~ 9th step of gray scale waveform. (Fig. 4-4-40)

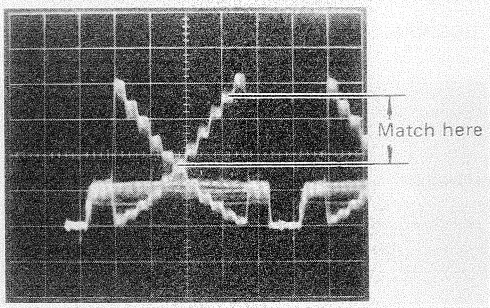


Fig. 4-4-40

- Repeat the above steps until the Y_L and B signal waveforms match.

(v) Y_L and R signal tracking adjustment

Test points:	TP208 (R)	Process	Board
	TP209 (Y_L)	"	"
Adjusts:	VR220 (R. GAIN PRESET)	"	"
	VR207 (R. PED)	"	"
	VR212 (R. TRACKING-2)	"	"
	VR213 (R. TRACKING-1)	"	"

- Keep setting the lens iris and connecting the jumper wire as in the preceding step.
- Confirm that R. TRACKING-1 VR213 and R. TRACKING-2 VR212 are set to their mechanical center.
- Aim the camera at the logarithmic gray scale chart.
- Connect the oscilloscope to TP208(R) and TP209(Y_L).
- Trigger the oscilloscope at H. rate. (Use TP105 on deflection board, or TP214 on process board)
- Overlay the R signal and the Y_L signal on the oscilloscope and confirm that the signal level between the black chip (zero step) and fifth step (crossing step) of the gray scale waveforms match. If not, adjust R. GAIN PRESET VR220 to match them. (Fig. 4-4-41)

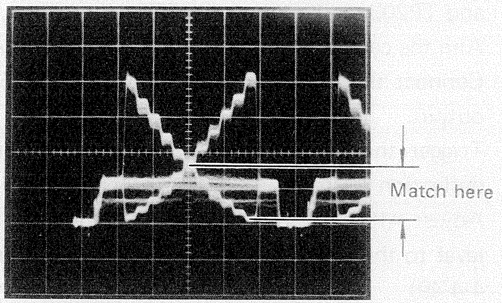


Fig. 4-4-41

- Adjust R. TRACKING-1 VR213 so that the R signal matches the Y_L signal in the lower half of the gray scale waveform. (Fig. 4-4-42)

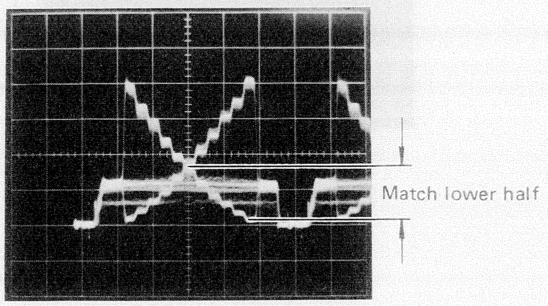


Fig. 4-4-42

- Adjust R. PED VR207 so that the pedestal level of Y_L signal matches that of B signal. (Fig. 4-4-43)

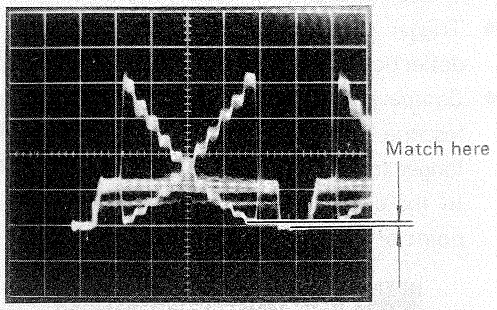


Fig. 4-4-43

- Adjust R. TRACKING-2 VR212 so that the R signal matches the Y_L signal in the 8th ~ 9th step of gray scale waveform. (Fig. 4-4-44)

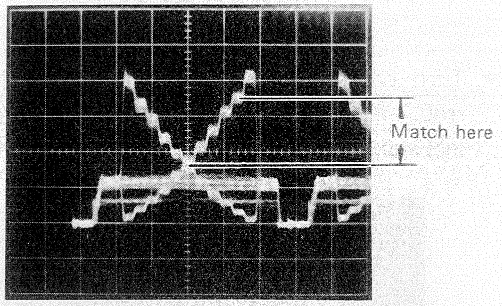


Fig. 4-4-44

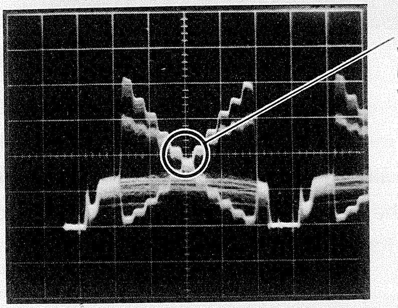
- Repeat the above steps until the Y_L and R signal waveforms match.

(w) B and R signal tracking-3 adjustment

Test points:	TP210 (B)	Process	Board
	TP208 (R)	"	"
	TP209 (Y_L)	"	"
Adjusts:	VR229 (B. TRACKING-3)	"	"
	VR214 (R. TRACKING-3)	"	"
	VR202 (TRACKING-3 SET)	"	"

- Set the zoom lens to the automatic iris control (AIC) mode by turning the iris setting screw in the zoom lens clockwise or counterclockwise to unlock it after setting the standby power switch on the rear of camera to the STANDBY position.
- Set the standby power switch to the ON position.
- Confirm that B. TRACKING-3 VR229, R. TRACKING-3 VR214 and TRACKING-3 SET VR202 are turned fully clockwise.

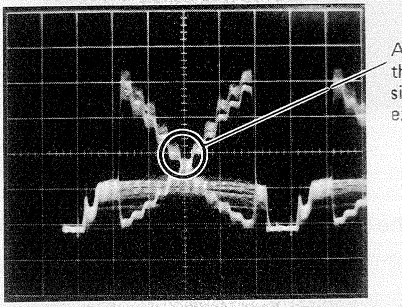
- Aim the camera at the logarithmic gray scale chart.
- Connect the oscilloscope to TP210(B) and TP209(Y_L).
- Trigger the oscilloscope at H. rate. (Use TP105 on deflection board, or TP214 on process board)
- Compare the B signal and Y_L signal on the oscilloscope, and note the step at which the B signal no longer tracks with the Y_L signal. (Fig. 4-4-45)
  In the example shown in Fig. 4-4-45, 6th step is the point of divergence.



Note the step at which the B signal no longer tracks with the Y_L signal.

Fig. 4-4-45

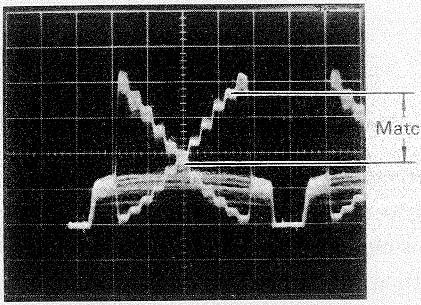
- Turn back TRACKING-3 SET VR202 slowly and stop it at the point where the noted step of B signal just starts to be extended. (Fig. 4-4-46)



Adjust VR202 so that the noted step of B signal just starts to be extended.

Fig. 4-4-46

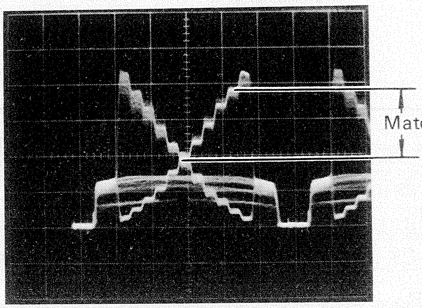
- Adjust B. TRACKING-3 VR229 so that the B signal matches the Y_L signal in the 8th ~ 9th step of gray scale waveform. (Fig. 4-4-47)



Match here

Fig. 4-4-47

- Repeat the above steps until the B signal and Y_L signal match.
- Connect the oscilloscope to TP208(R) and TP209(Y_L).
- Overlay the R signal and the Y_L signal on the oscilloscope, and adjust R. TRACKING-3 VR214 so that the R signal matches the Y_L signal in the 8th ~ 9th step of gray scale waveform. (Fig. 4-4-48)



Match here

Fig. 4-4-48

(x) AIC Level adjustment

Test point:	Pin 2 of CN205 or PAL output	Process Board
Adjust:	VR215 (AIC SET)	" "

- Keep setting the lens iris to the automatic iris control (AIC) mode as in the preceding step.
- Disconnect the jumper wire between pin 2 of CN207 and TP203, and connect CN207.
- Aim the camera at the logarithmic gray scale chart.
- Connect the oscilloscope to pin 2 of CN205 or PAL output.
- Trigger the oscilloscope at H. rate. (Use TP105 on deflection board, or TP214 on process board)
- Adjust AIC SET VR215 for 0.71V from the blanking level to the top step of the gray scale waveform. (Fig. 4-4-49)

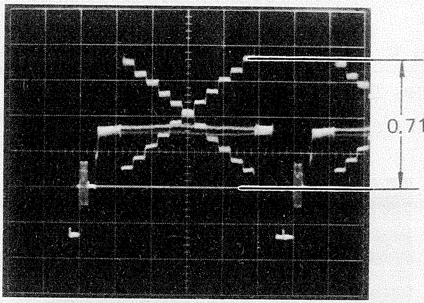


Fig. 4-4-49

(y) Chroma gain and burst phase adjustment

Test point:	Pin 2 of CN205 or PAL output	Process Board
Adjusts:	VR216 (CHROMA GAIN)	〃 〃
	VC202 (BURST PHASE)	〃 〃
Observe:	Vectorscope	

■ Adjustment using vectorscope

- Keep setting the lens iris and connecting CN207 as in the preceding step.
- Aim the camera at the color chart (YWV2100RB98) so that the chart occupies the raster of color monitor.
- Connect the PAL output to a terminated vectorscope.
- Turn the PHASE control of the vectorscope so that the burst vectors (Nth and N + 1st line) position on the burst axes on the vectorscope.
- Adjust BURST PHASE VC202 so that the phase of RED vectors (Nth and N + 1st line) are same against the B-Y(U) axis on the vectorscope. (Fig. 4-4-50)
- Adjust CHROMA GAIN VR216 so that the RED vector is equal to 150% as compares to the burst vector. (Fig. 4-4-50)

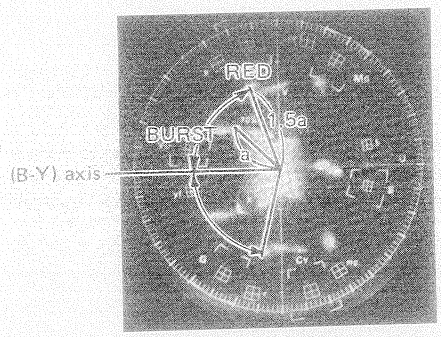

RED
BURST
1.5a
a
(B-Y) axis

Fig. 4-4-50

■ Adjustment without using vectorscope

- Keep setting the lens iris and connecting CN207 as in the preceding step.
- Aim the camera at the color chart (YWV2100RB98) so that the chart occupies the raster of color monitor.
- Turn BURST PHASE VC202 slowly and stop it when the color is maximum on the color monitor.
- Connect the oscilloscope to pin 2 of CN205 or PAL output.
- Trigger the oscilloscope at H. rate. (Use TP105 on deflection board, or TP214 on process board)
- Cover the cyan chip (Fig. 4-4-51) of color chart with a black paper for easy observation of red chrominance signal.

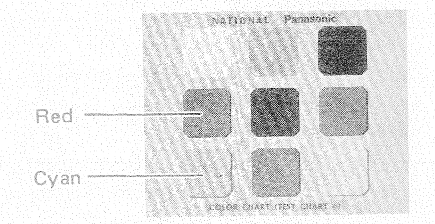

NATIONAL Panasonic
Red
Cyan
COLOR CHART (TEST CHART

Fig. 4-4-51

- Adjust CHROMA GAIN VR216 so that the red chrominance level is equal to 150% as compares to the burst signal level. (Fig. 4-4-52)

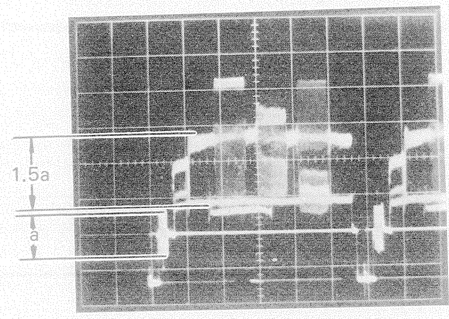
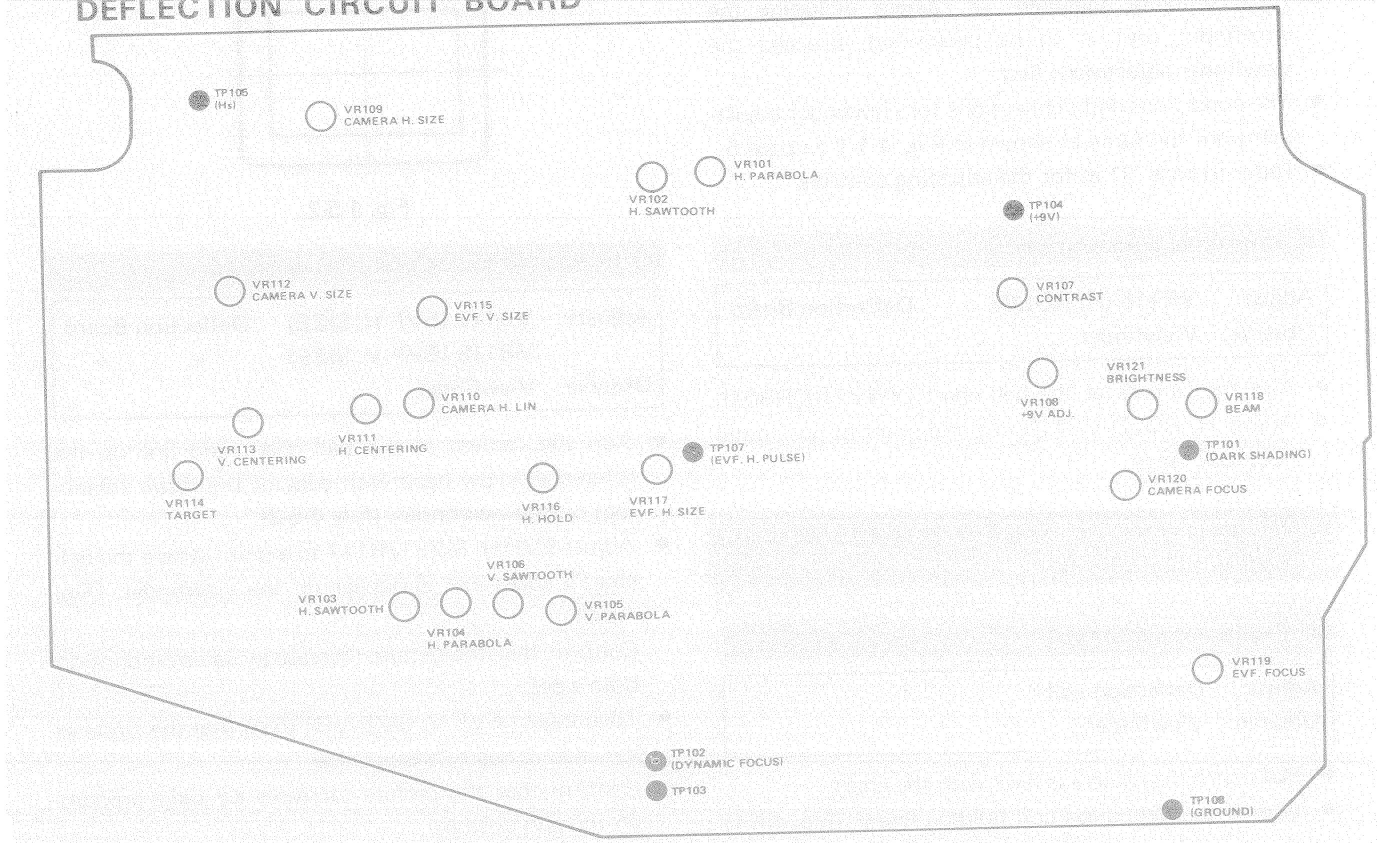


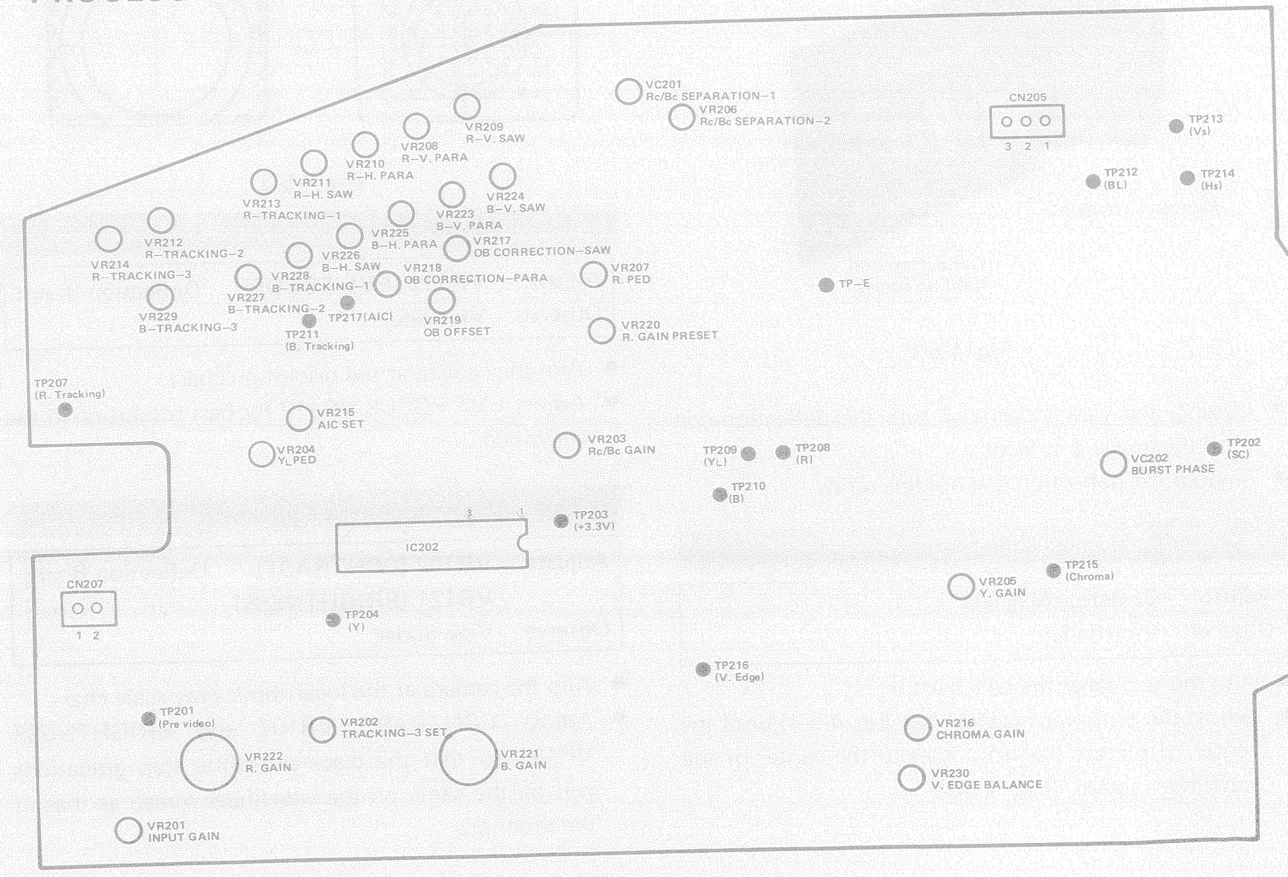
Fig. 4-4-52

LOCATION OF TEST POINTS AND ADJUSTING CONTROLS

DEFLECTION CIRCUIT BOARD


TP105 (Hs)
VR109 CAMERA H. SIZE
VR101 H. PARABOLA
VR102 H. SAWTOOTH
TP104 (+9V)
VR112 CAMERA V. SIZE
VR115 EVF. V. SIZE
VR107 CONTRAST
VR121 BRIGHTNESS
VR108 +9V ADJ.
VR118 BEAM
VR110 CAMERA H. LIN
VR111 H. CENTERING
VR113 V. CENTERING
TP107 (EVF. H. PULSE)
TP101 (DARK SHADING)
VR120 CAMERA FOCUS
VR114 TARGET
VR116 H. HOLD
VR117 EVF. H. SIZE
VR106 V. SAWTOOTH
VR103 H. SAWTOOTH
VR104 H. PARABOLA
VR105 V. PARABOLA
VR119 EVF. FOCUS
TP102 (DYNAMIC FOCUS)
TP103
TP108 (GROUND)

PROCESS CIRCUIT BOARD


VC201 Rc/Bc SEPARATION–1
VR206 Rc/Bc SEPARATION–2
CN205
3 2 1
TP213 (Vs)
TP212 (BL)
TP214 (Hs)
VR209 R–V. SAW
VR208 R–V. PARA
VR210 R–H. PARA
VR211 R–H. SAW
VR213 R–TRACKING–1
VR224 B–V. SAW
VR223 B–V. PARA
VR225 B–H. PARA
VR217 OB CORRECTION–SAW
VR212 R–TRACKING–2
VR214 R–TRACKING–3
VR226 B–H. SAW
VR228 B–TRACKING–1
VR218 OB CORRECTION–PARA
VR207 R. PED
TP–E
VR227 B–TRACKING–2
TP217(AIC)
VR229 B–TRACKING–3
TP211 (B. Tracking)
VR219 OB OFFSET
VR220 R. GAIN PRESET
TP207 (R. Tracking)
VR215 AIC SET
VR203 Rc/Bc GAIN
VR204 YL PED
TP209 (YL)
TP208 (R)
VC202 BURST PHASE
TP202 (SC)
TP210 (B)
IC202
3 1
TP203 (+3.3V)
CN207
1 2
VR205 Y. GAIN
TP215 (Chroma)
TP204 (Y)
TP216 (V. Edge)
TP201 (Pre video)
VR202 TRACKING–3 SET
VR222 R. GAIN
VR221 B. GAIN
VR216 CHROMA GAIN
VR230 V. EDGE BALANCE
VR201 INPUT GAIN

4-5. Viewfinder Adjustment

- If a complete alignment of camera including the viewfinder unit is to be performed, proceed the viewfinder adjustment first.
- The conditions and connections for viewfinder adjustment are the same as shown in Fig. 4-1-1 on page 5.
- Refer to page 21 at for the adjusting controls.

(a) Horizontal hold adjustment

Adjust:	VR116 (H. HOLD)	Deflection Board
Observe:	Viewfinder	

- Aim the camera at the ball chart (YWV2100RB03).
- Adjust H. HOLD VR116 to a mid-point of horizontal hold lock range.

(b) Reduce picture size using EVF H. SIZE VR117 and EVF V. SIZE VR115.

(c) Picture tilt adjustment

Adjust:	Deflection coil
Observe:	Viewfinder

- Make sure the camera is level with the chart.
- Loosen the deflection coil holding screw. (Fig. 4-5-1)

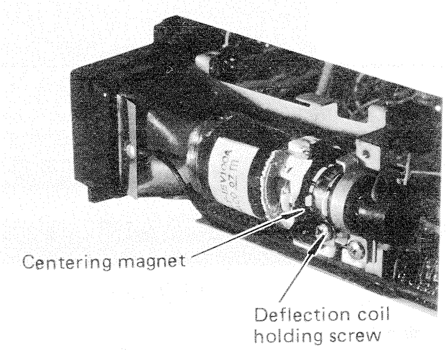


Fig. 4-5-1

- Observe the viewfinder, and turn the deflection coil until the image is straight.
- Tighten the deflection coil holding screw.

(d) Centering magnets adjustment

Adjust:	Centering Magnets
Observe:	Viewfinder

- Aim the camera at the ball chart.
- Adjust the centering magnets (see Fig. 4-5-1) until the center of picture (raster) comes to the center of the viewfinder screen. (Fig. 4-5-2)

Steps denoted by shaded outlines do not have to be performed if only vidicon is replaced.

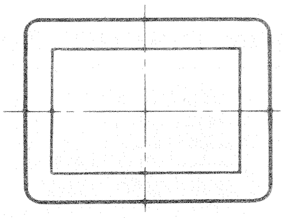


Fig. 4-5-2

(e) Horizontal and vertical size adjustment

Adjusts:	VR117 (EVF H. SIZE)	Deflection Board
	VR115 (EVF V. SIZE)	〃 〃
Observe:	Viewfinder	

- Aim the camera at the ball chart, and line up the reference arrow head with edge of the raster (blanking) on the viewfinder. (Fig. 4-5-3)
- Adjust EVF H. SIZE VR117 to a point where the ball chart's edges just disappear on the viewfinder. (Fig. 4-5-3)

  Confirm that the picture increase by same amount on both sides.
- Then adjust EVF V. SIZE VR115 so that the circle in the chart is nearly a true circle.

  Confirm that the picture increases by same amount on top and bottom.

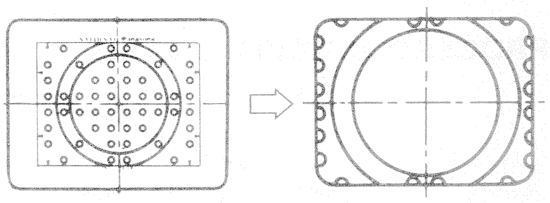


Fig. 4-5-3

(f) Focus adjustment

Adjust:	VR119 (EVF FOCUS)	Deflection Board
Observe:	Viewfinder	

- Aim the camera at the resolution chart.
- Adjust EVF FOCUS VR119 for best resolution in the viewfinder.

(g) Contrast and brightness adjustment

Adjusts:	VR107 (CONTRAST)	Deflection Board
	VR121 (BRIGHTNESS)	〃 〃
Observe:	Viewfinder	

- Aim the camera at the logarithmic gray scale chart.
- Adjust CONTRAST VR107 and BRIGHTNESS VR121 so that the black-and-white chip gradations will be the same on the viewfinder screen as that in the monitor.

ORDER NO. AVD-8103-544

Service Manual

Vol. 3

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Conductor Views

Colour Video Cameras

WV-3000E/WV-3000N

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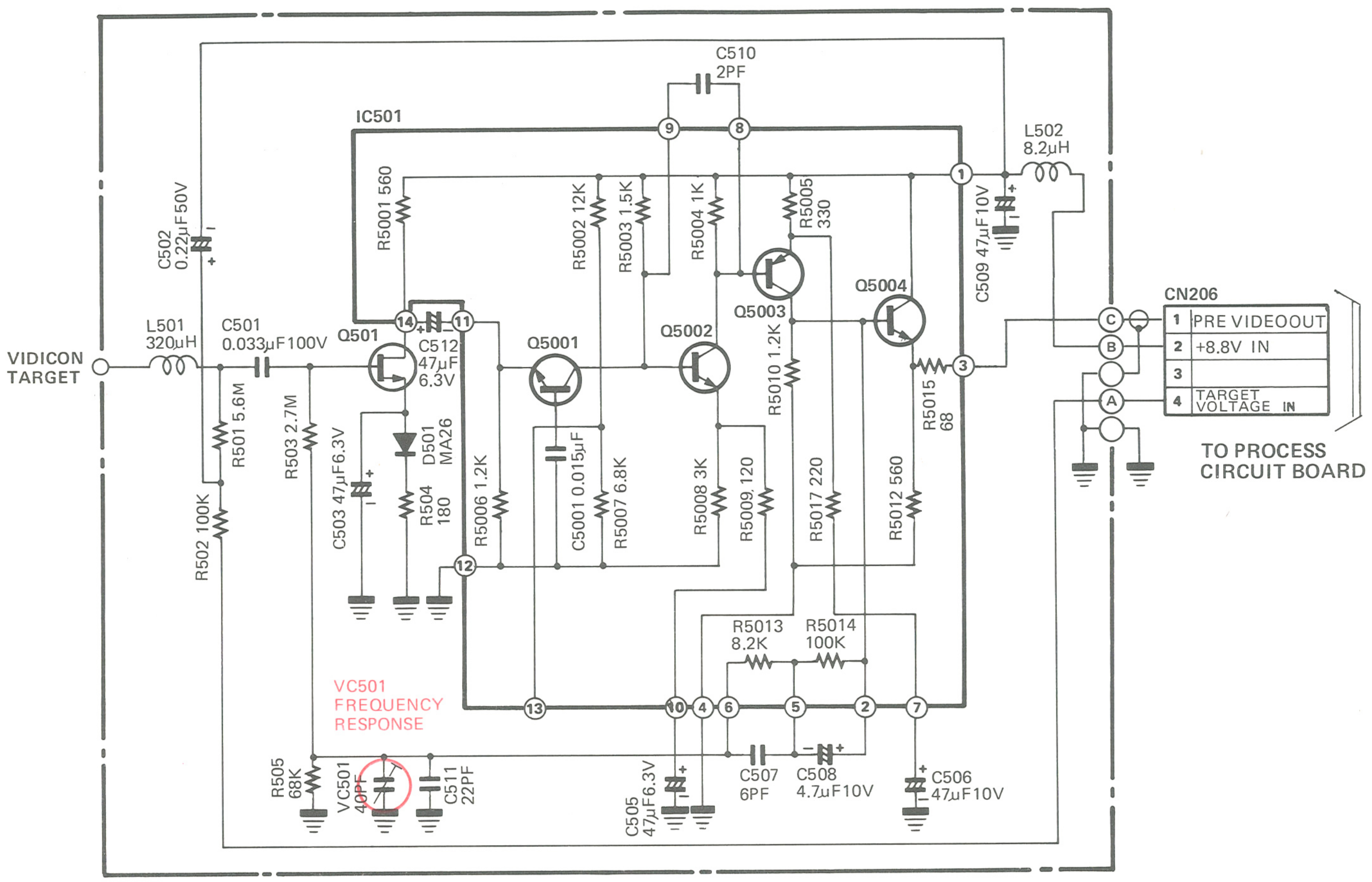
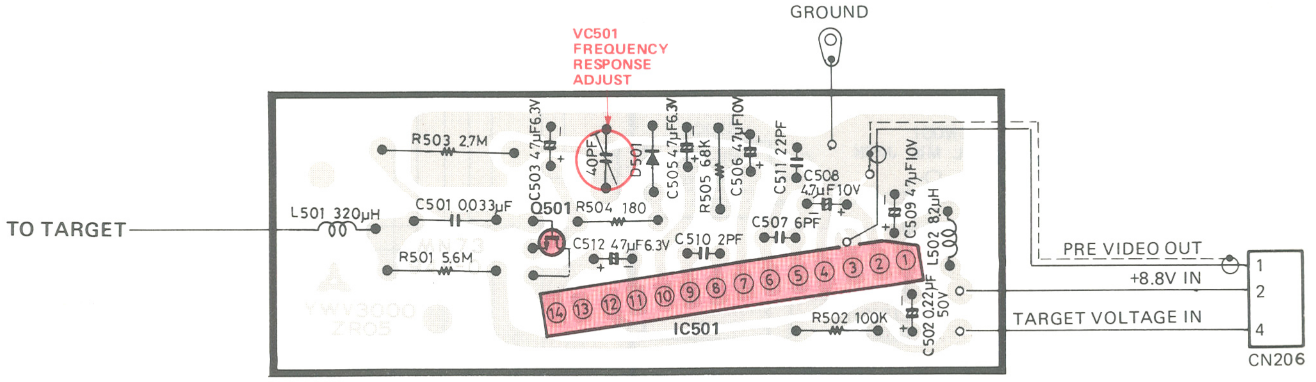
SCHEMATIC DIAGRAM OF PREAMPLIFIER CIRCUIT BOARD (YWCC005ZK05)



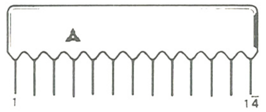
VIDICON TARGET
L501 320μH
C501 0.033μF100V
Q501
C502 0.22μF50V
R501 5.6M
R502 100K
R503 2.7M
C503 47μF6.3V
D501 MA26
R504 180
C512 47μF 6.3V
IC501
R5001 560
Q5001
C5001 0.015μF
R5002 12K
R5003 1.5K
R5006 1.2K
R5007 6.8K
Q5002
R5004 1K
R5008 3K
R5009 120
Q5003
R5005 330
R5010 1.2K
R5017 220
Q5004
R5012 560
R5015 68
C510 2PF
C509 47μF10V
L502 8.2μH
R5013 8.2K
R5014 100K
C505 47μF6.3V
C507 6PF
C508 4.7μF10V
C506 47μF10V
R505 68K
VC501 40PF
C511 22PF
VC501 FREQUENCY RESPONSE
1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
CN206
1 PRE VIDEOOUT
2 +8.8V IN
3
4 TARGET VOLTAGE IN
TO PROCESS CIRCUIT BOARD

CONDUCTOR VIEW OF PREAMPLIFIER CIRCUIT BOARD (YWCC005ZK05)

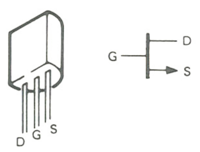


GROUND
VC501 FREQUENCY RESPONSE ADJUST
TO TARGET
R503 2.7M
C503 47μF6.3V
40PF
D501
C505 47μF6.3V
R505 68K
C506 47μF10V
C511 22PF
C508 4.7μF10V
C509 47μF10V
L502 8.2μH
L501 320μH
C501 0.033μF
Q501
R504 180
C507 6PF
C512 47μF6.3V
C510 2PF
R501 5.6M
IC501
R502 100K
C502 0.22μF 50V
1 2 3 4 5 6 7 8 9 10 11 12 13 14
PRE VIDEO OUT
+8.8V IN
TARGET VOLTAGE IN
1
2
4
CN206

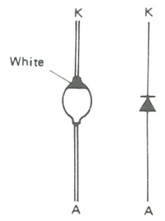
EHMK720A57



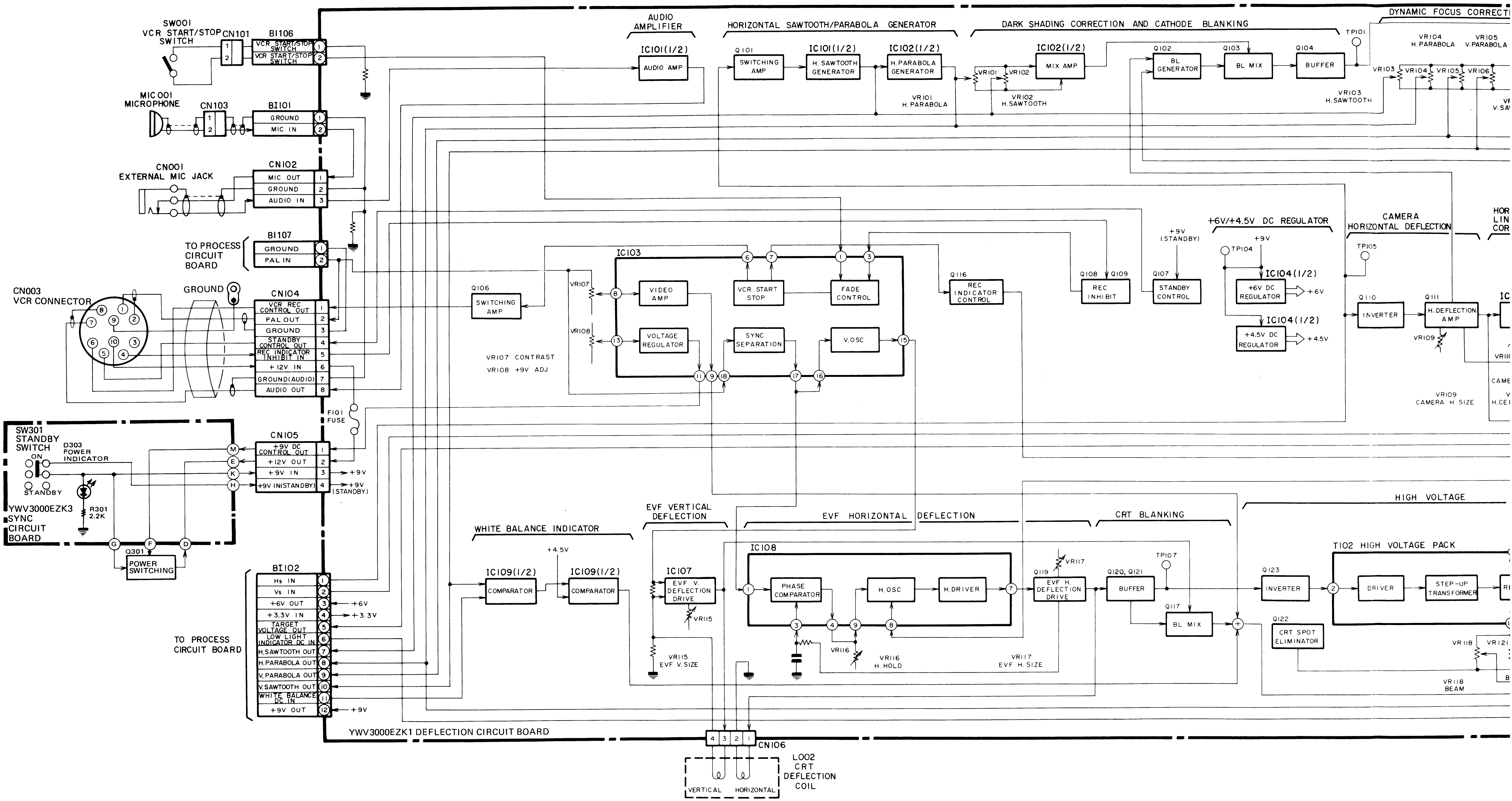
2SK218-QR



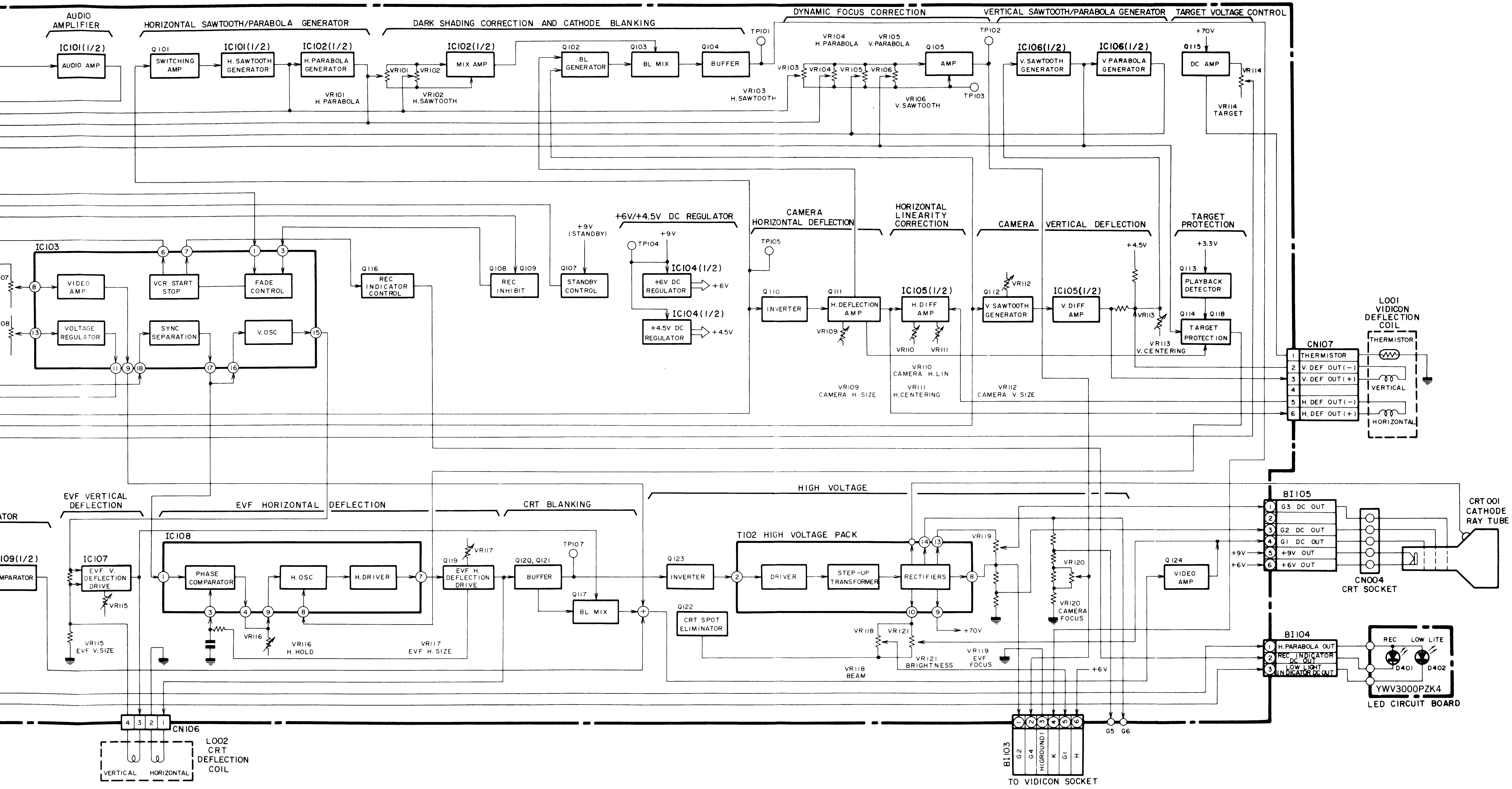
MA26

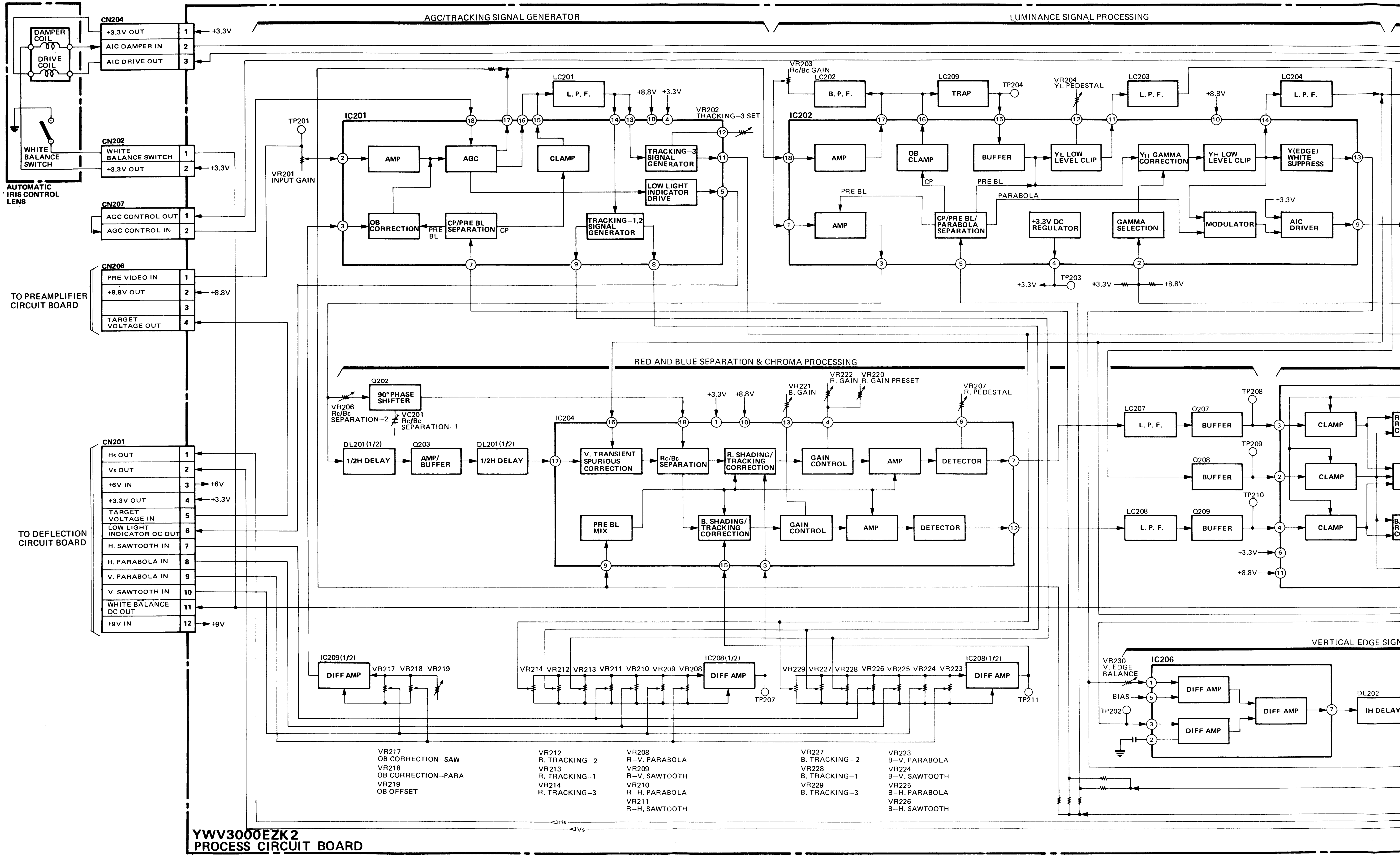


BLOCK DIAGRAM OF DEFLECTION CIRCUIT BOARD (YWV3000EZK1)

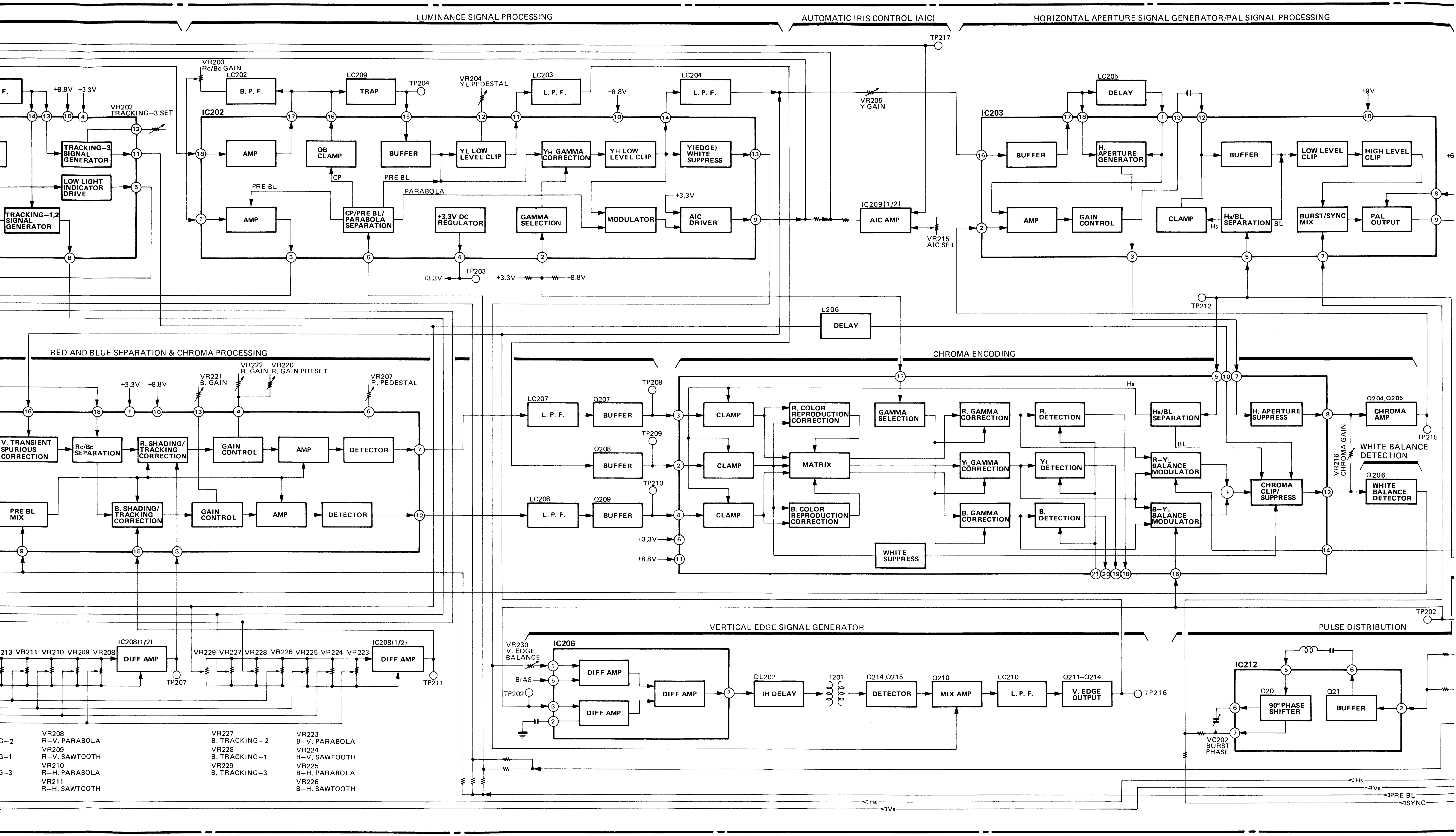

SW001
VCR START/STOP SWITCH
CN101
BI106
VCR START/STOP SWITCH
VCR START/STOP SWITCH
MIC001
MICROPHONE
CN103
BI101
GROUND
MIC IN
CN001
EXTERNAL MIC JACK
CN102
MIC OUT
GROUND
AUDIO IN
TO PROCESS CIRCUIT BOARD
BI107
GROUND
PAL IN
CN003
VCR CONNECTOR
GROUND
CN104
VCR REC CONTROL OUT
PAL OUT
GROUND
STANDBY CONTROL OUT
REC INDICATOR INHIBIT IN
+12V IN
GROUND(AUDIO)
AUDIO OUT
F101
FUSE
SW301
STANDBY SWITCH
ON
STANDBY
D303
POWER INDICATOR
R301
2.2K
YWV3000EZK3
SYNC CIRCUIT BOARD
Q301
POWER SWITCHING
CN105
+9V DC CONTROL OUT
+12V OUT
+9V IN
+9V IN(STANDBY)
+9V
+9V (STANDBY)
BI102
TO PROCESS CIRCUIT BOARD
Hs IN
Vs IN
+6V OUT
+3.3V IN
TARGET VOLTAGE OUT
LOW LIGHT INDICATOR DC IN
H.SAWTOOTH OUT
H.PARABOLA OUT
V.PARABOLA OUT
V.SAWTOOTH OUT
WHITE BALANCE DC IN
+9V OUT
+6V
+3.3V
+9V
YWV3000EZK1 DEFLECTION CIRCUIT BOARD
AUDIO AMPLIFIER
IC101(1/2)
AUDIO AMP
HORIZONTAL SAWTOOTH/PARABOLA GENERATOR
Q101
SWITCHING AMP
IC101(1/2)
H. SAWTOOTH GENERATOR
IC102(1/2)
H.PARABOLA GENERATOR
DARK SHADING CORRECTION AND CATHODE BLANKING
VR101
VR102
IC102(1/2)
MIX AMP
VR101
H. PARABOLA
VR102
H.SAWTOOTH
Q102
BL GENERATOR
Q103
BL MIX
Q104
BUFFER
TP101
VR103
H.SAWTOOTH
DYNAMIC FOCUS CORRECTI
VR104
H.PARABOLA
VR105
V.PARABOLA
VR103
VR104
VR105
VR106
VF
V.SAV
IC103
VIDEO AMP
VCR START STOP
FADE CONTROL
VOLTAGE REGULATOR
SYNC SEPARATION
V.OSC
VR107
VR108
VR107 CONTRAST
VR108 +9V ADJ
Q106
SWITCHING AMP
Q116
REC INDICATOR CONTROL
Q108
Q109
REC INHIBIT
+9V (STANDBY)
Q107
STANDBY CONTROL
+6V/+4.5V DC REGULATOR
+9V
TP104
IC104(1/2)
+6V DC REGULATOR
+6V
IC104(1/2)
+4.5V DC REGULATOR
+4.5V
CAMERA HORIZONTAL DEFLECTION
TP105
Q110
INVERTER
Q111
H. DEFLECTION AMP
VR109
VR109
CAMERA H. SIZE
HOR
LIN
COR
IC
VR11
CAME
V
H.CE
HIGH VOLTAGE
WHITE BALANCE INDICATOR
+4.5V
IC109(1/2)
COMPARATOR
IC109(1/2)
COMPARATOR
EVF VERTICAL DEFLECTION
IC107
EVF V. DEFLECTION DRIVE
VR115
VR115
EVF V. SIZE
EVF HORIZONTAL DEFLECTION
IC108
PHASE COMPARATOR
H. OSC
H. DRIVER
VR116
VR116
H. HOLD
VR117
Q119
EVF H. DEFLECTION DRIVE
VR117
EVF H. SIZE
CRT BLANKING
Q120, Q121
BUFFER
TP107
Q117
BL MIX
Q123
INVERTER
Q122
CRT SPOT ELIMINATOR
T102 HIGH VOLTAGE PACK
DRIVER
STEP-UP TRANSFORMER
RE
VR118
VR121
VR118
BEAM
B
CN106
L002
CRT DEFLECTION COIL
VERTICAL
HORIZONTAL

BLOCK DIAGRAM OF DEFLECTION CIRCUIT BOARD (YWV3000EZK1)

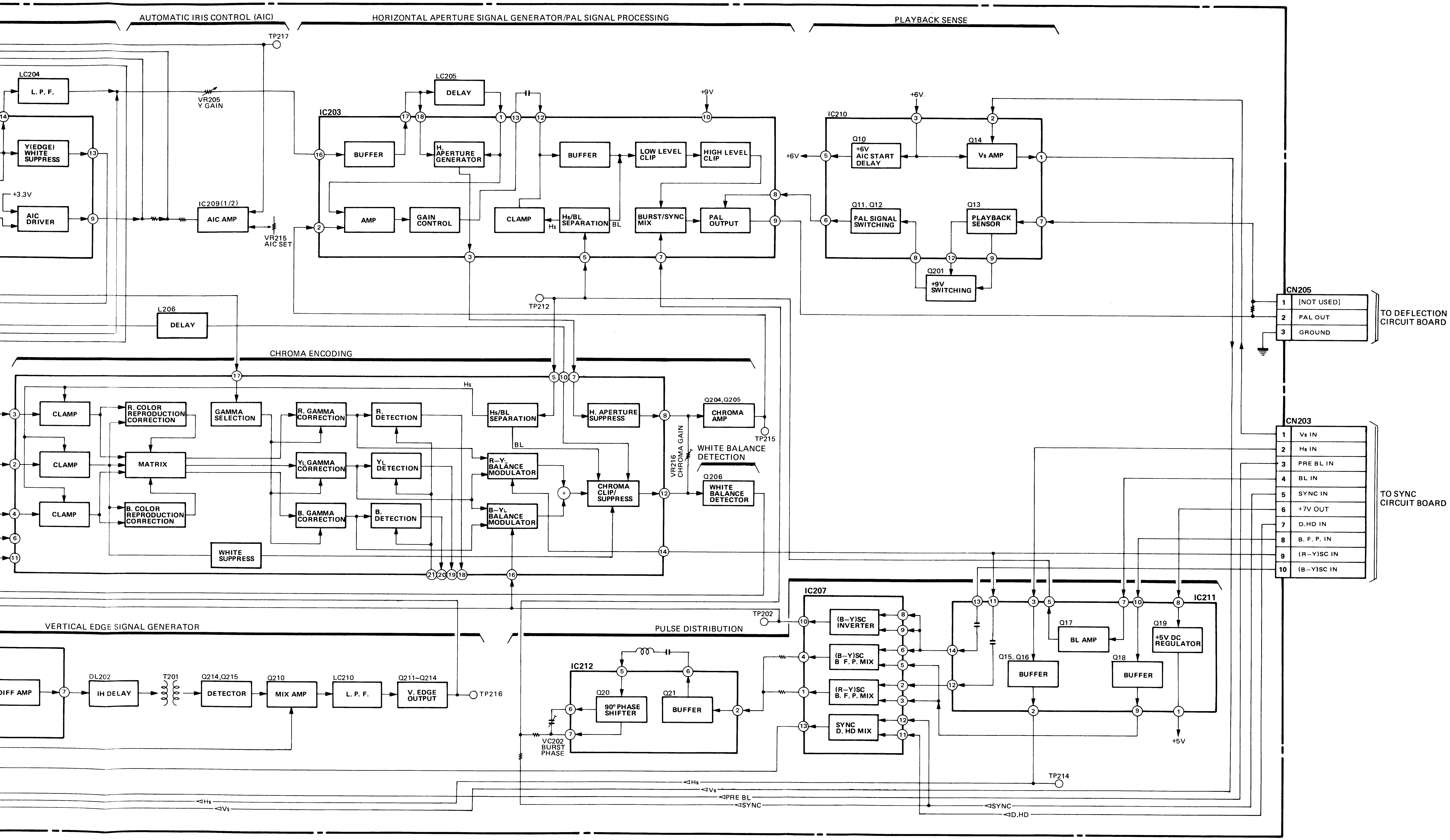

AUDIO AMPLIFIER
IC101(1/2)
AUDIO AMP
HORIZONTAL SAWTOOTH/PARABOLA GENERATOR
Q101
SWITCHING AMP
IC101(1/2)
H. SAWTOOTH GENERATOR
IC102(1/2)
H. PARABOLA GENERATOR
VR101 H. PARABOLA
DARK SHADING CORRECTION AND CATHODE BLANKING
IC102(1/2)
MIX AMP
VR101
VR102
VR102 H. SAWTOOTH
Q102
BL GENERATOR
Q103
BL MIX
Q104
BUFFER
TP101
VR103 H. SAWTOOTH
DYNAMIC FOCUS CORRECTION
VR104 H. PARABOLA
VR105 V. PARABOLA
Q105
AMP
VR103
VR104
VR105
VR106
VR106 V. SAWTOOTH
TP102
TP103
VERTICAL SAWTOOTH/PARABOLA GENERATOR
IC106(1/2)
V. SAWTOOTH GENERATOR
IC106(1/2)
V. PARABOLA GENERATOR
TARGET VOLTAGE CONTROL
+70V
Q115
DC AMP
VR114
VR114 TARGET
IC103
VIDEO AMP
VOLTAGE REGULATOR
VCR START STOP
SYNC SEPARATION
FADE CONTROL
V. OSC
Q116
REC INDICATOR CONTROL
Q108 Q109
REC INHIBIT
+9V (STANDBY)
Q107
STANDBY CONTROL
+6V/+4.5V DC REGULATOR
TP104
+9V
IC104(1/2)
+6V DC REGULATOR
+6V
IC104(1/2)
+4.5V DC REGULATOR
+4.5V
CAMERA HORIZONTAL DEFLECTION
TP105
Q110
INVERTER
Q111
H. DEFLECTION AMP
VR109
VR109 CAMERA H SIZE
HORIZONTAL LINEARITY CORRECTION
IC105(1/2)
H. DIFF AMP
VR110
VR111
VR110 CAMERA H. LIN
VR111 H. CENTERING
CAMERA VERTICAL DEFLECTION
Q112
VR112
V. SAWTOOTH GENERATOR
VR112 CAMERA V. SIZE
IC105(1/2)
V. DIFF AMP
+4.5V
VR113
VR113 V. CENTERING
TARGET PROTECTION
+3.3V
Q113
PLAYBACK DETECTOR
Q114 Q118
TARGET PROTECTION
L001 VIDICON DEFLECTION COIL
THERMISTOR
VERTICAL
HORIZONTAL
CN107
1 THERMISTOR
2 V. DEF OUT(−)
3 V. DEF OUT(+)
4
5 H. DEF OUT(−)
6 H. DEF OUT(+)
ATOR
109(1/2)
MPARATOR
EVF VERTICAL DEFLECTION
IC107
EVF V. DEFLECTION DRIVE
VR115
VR115 EVF V. SIZE
EVF HORIZONTAL DEFLECTION
IC108
PHASE COMPARATOR
H. OSC
H. DRIVER
VR116
VR116 H. HOLD
Q119
VR117
EVF H. DEFLECTION DRIVE
VR117 EVF H. SIZE
CRT BLANKING
TP107
Q120, Q121
BUFFER
Q117
BL MIX
HIGH VOLTAGE
Q123
INVERTER
T102 HIGH VOLTAGE PACK
DRIVER
STEP-UP TRANSFORMER
RECTIFIERS
Q122
CRT SPOT ELIMINATOR
VR118
VR121
VR118 BEAM
VR121 BRIGHTNESS
+70V
VR119
VR119 EVF FOCUS
VR120
VR120 CAMERA FOCUS
+6V
Q124
VIDEO AMP
+9V
+6V
B1105
1 G3 DC OUT
2
3 G2 DC OUT
4 G1 DC OUT
5 +9V OUT
6 +6V OUT
CN004 CRT SOCKET
CRT 001 CATHODE RAY TUBE
B1104
1 H. PARABOLA OUT
2 REC INDICATOR DC OUT
3 LOW LIGHT INDICATOR DC OUT
REC
LOW LITE
D401
D402
YWV3000PZK4
LED CIRCUIT BOARD
4 3 2 1
CN106
L002 CRT DEFLECTION COIL
VERTICAL
HORIZONTAL
B1103
G2
G4
H(GROUND)
K
G1
H
TO VIDICON SOCKET
G5 G6


AGC/TRACKING SIGNAL GENERATOR
LUMINANCE SIGNAL PROCESSING
RED AND BLUE SEPARATION & CHROMA PROCESSING
VERTICAL EDGE SIGN
CN204
+3.3V OUT
AIC DAMPER IN
AIC DRIVE OUT
DAMPER COIL
DRIVE COIL
WHITE BALANCE SWITCH
AUTOMATIC IRIS CONTROL LENS
CN202
WHITE BALANCE SWITCH
+3.3V OUT
CN207
AGC CONTROL OUT
AGC CONTROL IN
CN206
PRE VIDEO IN
+8.8V OUT
TARGET VOLTAGE OUT
TO PREAMPLIFIER CIRCUIT BOARD
CN201
Hs OUT
Vs OUT
+6V IN
+3.3V OUT
TARGET VOLTAGE IN
LOW LIGHT INDICATOR DC OUT
H. SAWTOOTH IN
H. PARABOLA IN
V. PARABOLA IN
V. SAWTOOTH IN
WHITE BALANCE DC OUT
+9V IN
TO DEFLECTION CIRCUIT BOARD
+3.3V
+8.8V
+6V
+9V
TP201
VR201 INPUT GAIN
IC201
AMP
AGC
CLAMP
LC201
L. P. F.
TRACKING-3 SIGNAL GENERATOR
LOW LIGHT INDICATOR DRIVE
VR202 TRACKING-3 SET
OB CORRECTION
CP/PRE BL SEPARATION
PRE BL
CP
TRACKING-1,2 SIGNAL GENERATOR
VR203 Rc/Bc GAIN
LC202
B. P. F.
LC209
TRAP
TP204
VR204 YL PEDESTAL
LC203
L. P. F.
LC204
L. P. F.
IC202
AMP
OB CLAMP
BUFFER
YL LOW LEVEL CLIP
YH GAMMA CORRECTION
YH LOW LEVEL CLIP
Y(EDGE) WHITE SUPPRESS
PRE BL
PARABOLA
CP/PRE BL/ PARABOLA SEPARATION
+3.3V DC REGULATOR
GAMMA SELECTION
MODULATOR
AIC DRIVER
TP203
Q202
90° PHASE SHIFTER
VR206 Rc/Bc SEPARATION-2
VC201 Rc/Bc SEPARATION-1
DL201(1/2)
1/2H DELAY
Q203
AMP/ BUFFER
DL201(1/2)
1/2H DELAY
IC204
V. TRANSIENT SPURIOUS CORRECTION
Rc/Bc SEPARATION
R. SHADING/ TRACKING CORRECTION
GAIN CONTROL
AMP
DETECTOR
PRE BL MIX
B. SHADING/ TRACKING CORRECTION
GAIN CONTROL
AMP
DETECTOR
VR221 B. GAIN
VR222 R. GAIN
VR220 R. GAIN PRESET
VR207 R. PEDESTAL
TP208
LC207
L. P. F.
Q207
BUFFER
CLAMP
TP209
Q208
BUFFER
CLAMP
TP210
LC208
L. P. F.
Q209
BUFFER
CLAMP
IC209(1/2)
DIFF AMP
VR217 VR218 VR219
VR214 VR212 VR213 VR211 VR210 VR209 VR208
IC208(1/2)
DIFF AMP
TP207
VR229 VR227 VR228 VR226 VR225 VR224 VR223
IC208(1/2)
DIFF AMP
TP211
VR230 V. EDGE BALANCE
BIAS
TP202
IC206
DIFF AMP
DIFF AMP
DIFF AMP
DL202
IH DELAY
VR217 OB CORRECTION-SAW
VR218 OB CORRECTION-PARA
VR219 OB OFFSET
VR212 R. TRACKING-2
VR213 R. TRACKING-1
VR214 R. TRACKING-3
VR208 R-V. PARABOLA
VR209 R-V. SAWTOOTH
VR210 R-H. PARABOLA
VR211 R-H. SAWTOOTH
VR227 B. TRACKING-2
VR228 B. TRACKING-1
VR229 B. TRACKING-3
VR223 B-V. PARABOLA
VR224 B-V. SAWTOOTH
VR225 B-H. PARABOLA
VR226 B-H. SAWTOOTH
Hs
Vs
YWV3000EZK2 PROCESS CIRCUIT BOARD

BLOCK DIAGRAM OF PROCESS CIRCUIT BOARD (YWV3000EZK2)

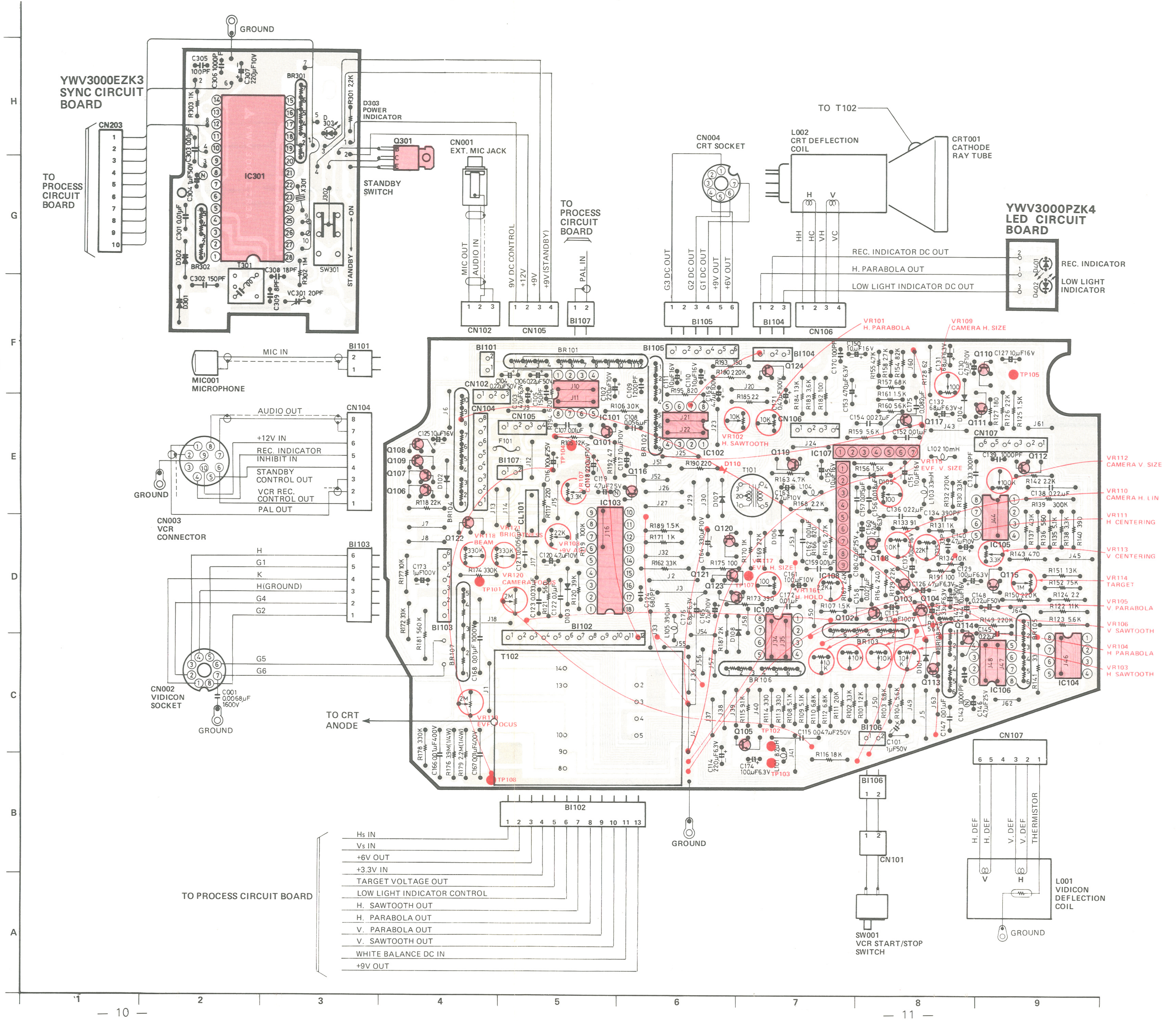

LUMINANCE SIGNAL PROCESSING
AUTOMATIC IRIS CONTROL (AIC)
HORIZONTAL APERTURE SIGNAL GENERATOR/PAL SIGNAL PROCESSING
RED AND BLUE SEPARATION & CHROMA PROCESSING
CHROMA ENCODING
VERTICAL EDGE SIGNAL GENERATOR
PULSE DISTRIBUTION
TP217
VR203 Rc/Bc GAIN
LC202
B. P. F.
LC209
TRAP
TP204
VR204 YL PEDESTAL
LC203
L. P. F.
LC204
L. P. F.
+8.8V
+3.3V
VR202 TRACKING–3 SET
IC202
TRACKING–3 SIGNAL GENERATOR
LOW LIGHT INDICATOR DRIVE
TRACKING–1,2 SIGNAL GENERATOR
AMP
OB CLAMP
BUFFER
YL LOW LEVEL CLIP
YH GAMMA CORRECTION
YH LOW LEVEL CLIP
Y(EDGE) WHITE SUPPRESS
PRE BL
CP
PARABOLA
CP/PRE BL/ PARABOLA SEPARATION
+3.3V DC REGULATOR
GAMMA SELECTION
MODULATOR
AIC DRIVER
TP203
+3.3V
+8.8V
VR205 Y GAIN
IC209(1/2)
AIC AMP
VR215 AIC SET
LC205
DELAY
+9V
IC203
BUFFER
H. APERTURE GENERATOR
LOW LEVEL CLIP
HIGH LEVEL CLIP
AMP
GAIN CONTROL
CLAMP
Hs/BL SEPARATION
Hs
BL
BURST/SYNC MIX
PAL OUTPUT
TP212
L206
DELAY
VR222 R. GAIN
VR220 R. GAIN PRESET
VR221 B. GAIN
VR207 R. PEDESTAL
V. TRANSIENT SPURIOUS CORRECTION
Rc/Bc SEPARATION
R. SHADING/ TRACKING CORRECTION
GAIN CONTROL
DETECTOR
PRE BL MIX
B. SHADING/ TRACKING CORRECTION
TP208
TP209
TP210
LC207
LC208
Q207
Q208
Q209
CLAMP
R. COLOR REPRODUCTION CORRECTION
MATRIX
B. COLOR REPRODUCTION CORRECTION
WHITE SUPPRESS
GAMMA SELECTION
R. GAMMA CORRECTION
YL GAMMA CORRECTION
B. GAMMA CORRECTION
R. DETECTION
YL DETECTION
B. DETECTION
Hs/BL SEPARATION
R–YL BALANCE MODULATOR
B–YL BALANCE MODULATOR
H. APERTURE SUPPRESS
CHROMA CLIP/ SUPPRESS
Q204,Q205
CHROMA AMP
TP215
VR216 CHROMA GAIN
WHITE BALANCE DETECTION
Q206
WHITE BALANCE DETECTOR
TP202
IC208(1/2)
DIFF AMP
TP207
TP211
213 VR211 VR210 VR209 VR208
VR229 VR227 VR228 VR226 VR225 VR224 VR223
VR230 V. EDGE BALANCE
IC206
BIAS
DL202
IH DELAY
T201
Q214,Q215
Q210
MIX AMP
LC210
Q211~Q214
V. EDGE OUTPUT
TP216
IC212
Q20
90° PHASE SHIFTER
Q21
VC202 BURST PHASE
G–2
G–1
G–3
VR208 R–V. PARABOLA
VR209 R–V. SAWTOOTH
VR210 R–H. PARABOLA
VR211 R–H. SAWTOOTH
VR227 B. TRACKING–2
VR228 B. TRACKING–1
VR229 B. TRACKING–3
VR223 B–V. PARABOLA
VR224 B–V. SAWTOOTH
VR225 B–H. PARABOLA
VR226 B–H. SAWTOOTH
Hs
Vs
PRE BL
SYNC
+6

PROCESS CIRCUIT BOARD (YWV3000EZK2)

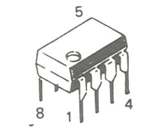

AUTOMATIC IRIS CONTROL (AIC)
HORIZONTAL APERTURE SIGNAL GENERATOR/PAL SIGNAL PROCESSING
PLAYBACK SENSE
TP217
LC204
L. P. F.
VR205
Y GAIN
Y(EDGE) WHITE SUPPRESS
+3.3V
AIC DRIVER
IC209(1/2)
AIC AMP
VR215
AIC SET
LC205
DELAY
IC203
BUFFER
H. APERTURE GENERATOR
AMP
GAIN CONTROL
CLAMP
Hs/BL SEPARATION
Hs
BL
+9V
BUFFER
LOW LEVEL CLIP
HIGH LEVEL CLIP
BURST/SYNC MIX
PAL OUTPUT
TP212
IC210
+6V
Q10
+6V AIC START DELAY
Q14
Vs AMP
Q11, Q12
PAL SIGNAL SWITCHING
Q13
PLAYBACK SENSOR
Q201
+9V SWITCHING
L206
DELAY
CN205
1 [NOT USED]
2 PAL OUT
3 GROUND
TO DEFLECTION CIRCUIT BOARD
CHROMA ENCODING
CLAMP
CLAMP
CLAMP
R. COLOR REPRODUCTION CORRECTION
MATRIX
B. COLOR REPRODUCTION CORRECTION
GAMMA SELECTION
R. GAMMA CORRECTION
YL GAMMA CORRECTION
B. GAMMA CORRECTION
R. DETECTION
YL DETECTION
B. DETECTION
WHITE SUPPRESS
Hs/BL SEPARATION
R-YL BALANCE MODULATOR
B-YL BALANCE MODULATOR
H. APERTURE SUPPRESS
CHROMA CLIP/ SUPPRESS
Q204, Q205
CHROMA AMP
TP215
VR216 CHROMA GAIN
WHITE BALANCE DETECTION
Q206
WHITE BALANCE DETECTOR
CN203
1 Vs IN
2 Hs IN
3 PRE BL IN
4 BL IN
5 SYNC IN
6 +7V OUT
7 D.HD IN
8 B. F. P. IN
9 (R−Y)SC IN
10 (B−Y)SC IN
TO SYNC CIRCUIT BOARD
VERTICAL EDGE SIGNAL GENERATOR
DIFF AMP
DL202
IH DELAY
T201
Q214, Q215
DETECTOR
Q210
MIX AMP
LC210
L. P. F.
Q211~Q214
V. EDGE OUTPUT
TP216
PULSE DISTRIBUTION
IC212
Q20
90° PHASE SHIFTER
Q21
BUFFER
VC202 BURST PHASE
TP202
IC207
(B−Y)SC INVERTER
(B−Y)SC B. F. P. MIX
(R−Y)SC B. F. P. MIX
SYNC D. HD MIX
IC211
Q17
BL AMP
Q19
+5V DC REGULATOR
Q15, Q16
BUFFER
Q18
BUFFER
+5V
TP214
Hs
Vs
PRE BL
SYNC
SYNC
D.HD
Hs
Vs

CONDUCTOR VIEW OF DEFLECTION CIRCUIT BOARD (YWV3000EZK1) AND SYNC CIRCUIT BOARD (YWV3000EZK3)

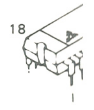
IC101	YHSNJM4558D	F5
IC102	NJM4560D	E6
IC103	AN6055	D5
IC104	NJM4556D	C9
IC105	NJM4556DT	D9
IC106	YHSNJM4558D	C9
IC107	AN374P	E8
IC108	AN5750	D7
IC109	AN6914	C7
IC301	YWHD44007A	H2, G2
Q101	2SC2377-CD	E5
Q102	2SC2377-CD	D8
Q103	2SA749A	D8
Q104	2SA749A	D8
Q105	2SC1980-RST	C7
Q106	2SD636-QRS	E4
Q107	2SB641-QRS	E4
Q108	2SD636-QRS	E4
Q109	2SB641-QRS	E4
Q110	2SD638-QR	F9
Q111	2SD959-PQ	E9
Q112	2SD638-QR	E9
Q113	2SB641-QRS	C8
Q114	2SD636-QRS	C8
Q115	2SC1473NCQRS	D9
Q116	2SD661-TU	E6
Q117	2SB641-QRS	E8
Q118	2SD636-QRS	D8
Q119	2SD866-PQ	E7
Q120	2SC2377-CD	D6
Q121	2SA838-CD	D6
Q122	2SA749A	D4
Q123	2SD638-QR	D6
Q124	2SC1980-RST	F7
Q301	2SA1061-P	G4
D101	MA165	D8
D102	MA165	E4
D103	MA165	D5
D104	MA165	E8
D105	MA165	E8
D106	YUDRU2M	D6
D107	MA165	E6
D108	MA165	D6
D110	MA165	E5
D301	YUD1S2688	F2
D302	YUD1S2688	G2
D303	LN217RP	H3
D401	LN23SRP-D	G9
D402	LN43SYP	F9


GROUND
YWV3000EZK3
SYNC CIRCUIT
BOARD
CN203
TO PROCESS CIRCUIT BOARD
IC301
BR301
BR302
T301
C305 100PF
C306 1000PF
C307 220µF10V
R303 1K
R301 22K
C303 0.01µF
C304 1µF50V
C301 0.01µF
C302 150PF
C308 18PF
C309 8PF
R302 1M
VC301 20PF
X301
J302
SW301
STANDBY
ON
D301
D302
D303
POWER INDICATOR
Q301
STANDBY SWITCH
CN001
EXT. MIC JACK
MIC OUT
AUDIO IN
9V DC CONTROL
+12V
+9V
+9V (STANDBY)
PAL IN
TO PROCESS CIRCUIT BOARD
CN102
CN105
BI107
CN004
CRT SOCKET
G3 DC OUT
G2 DC OUT
G1 DC OUT
+9V OUT
+6V OUT
BI105
TO T102
L002
CRT DEFLECTION COIL
CRT001
CATHODE RAY TUBE
H
V
HH
HC
VH
VC
BI104
CN106
YWV3000PZK4
LED CIRCUIT
BOARD
REC. INDICATOR DC OUT
H. PARABOLA OUT
LOW LIGHT INDICATOR DC OUT
D401
D402
REC. INDICATOR
LOW LIGHT INDICATOR
MIC IN
BI101
MIC001
MICROPHONE
AUDIO OUT
+12V IN
REC. INDICATOR INHIBIT IN
STANDBY CONTROL OUT
VCR REC. CONTROL OUT
PAL OUT
CN104
GROUND
CN003
VCR CONNECTOR
H
G1
K
H(GROUND)
G4
G2
BI103
G5
G6
CN002
VIDICON SOCKET
C001 0.0068µF 1600V
GROUND
TO CRT ANODE
VR101 H. PARABOLA
VR109 CAMERA H. SIZE
VR102 H. SAWTOOTH
VR112 CAMERA V. SIZE
VR110 CAMERA H. LIN
VR111 H. CENTERING
VR113 V. CENTERING
VR114 TARGET
VR105 V. PARABOLA
VR106 V. SAWTOOTH
VR104 H. PARABOLA
VR103 H. SAWTOOTH
VR115 V. SIZE
VR116 H. HOLD
VR117 H. SIZE
VR118 BEAM
VR107 BRIGHTNESS
VR108 +9V ADJ
VR120 CAMERA FOCUS
VR119 EVF FOCUS
TP101
TP102
TP103
TP104
TP105
TP106
TP107
IC101
IC102
IC103
IC104
IC105
IC106
IC107
IC108
IC109
T101
T102
BI102
BI106
BR101
BR102
BR103
BR104
BR105
BR106
BR107
CN107
F101
L102 10mH
L104
CL101
Hs IN
Vs IN
+6V OUT
+3.3V IN
TARGET VOLTAGE OUT
LOW LIGHT INDICATOR CONTROL
H. SAWTOOTH OUT
H. PARABOLA OUT
V. PARABOLA OUT
V. SAWTOOTH OUT
WHITE BALANCE DC IN
+9V OUT
TO PROCESS CIRCUIT BOARD
GROUND
CN101
SW001
VCR START/STOP SWITCH
H. DEF
H. DEF
V. DEF
V. DEF
THERMISTOR
L001
VIDICON DEFLECTION COIL
GROUND
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9

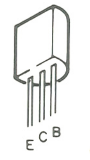
AN6914
NJM4556D
NJM4556DT
NJM4560D
YHSNJM4558D



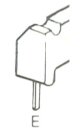
AN6055



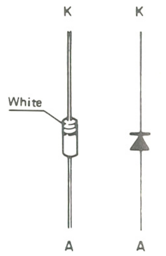
2SA749A
2SA838-CD
2SC1473NCQRS
2SC1980-RST



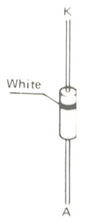
2SB641-
2SC237
2SD636-
2SD638-
2SD661-



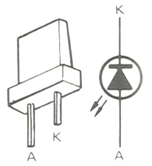
MA165



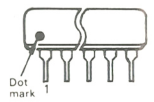
YUDRU



LN217RP

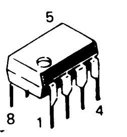


BLOCK RESISTOR

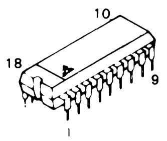


(Dot indicates pin No. 1 side)

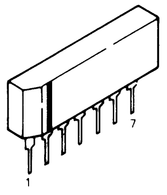
N6914
M4556D
M4556DT
M4560D
HSNJM4558D



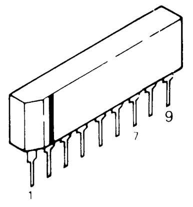
AN6055



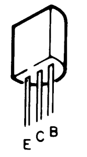
AN374P



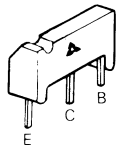
AN5750



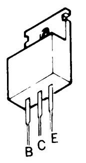
A749A
A838-CD
C1473NCQRS
C1980-RST



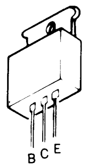
2SB641-QRS
2SC2377-CD
2SD636-QRS
2SD638-QRS
2SD661-TU



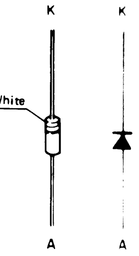
2SD866-PQ
2SD959-PQ



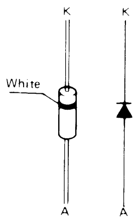
2SA1061-P



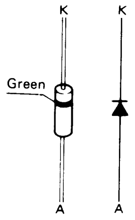
165



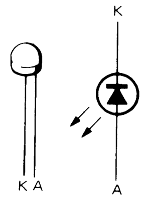
YUDRU2M



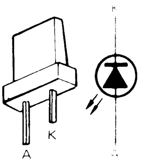
YUD1S2688



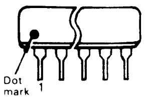
LN23SRP-D
LN43SYP



217RP

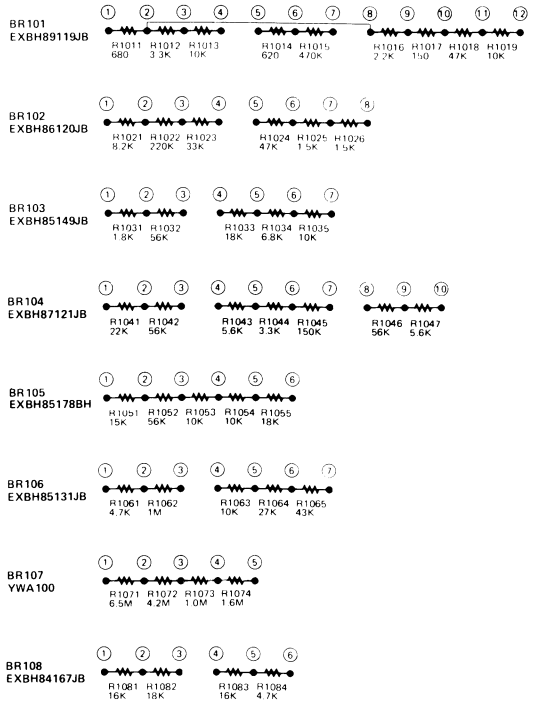


BLOCK RESISTOR

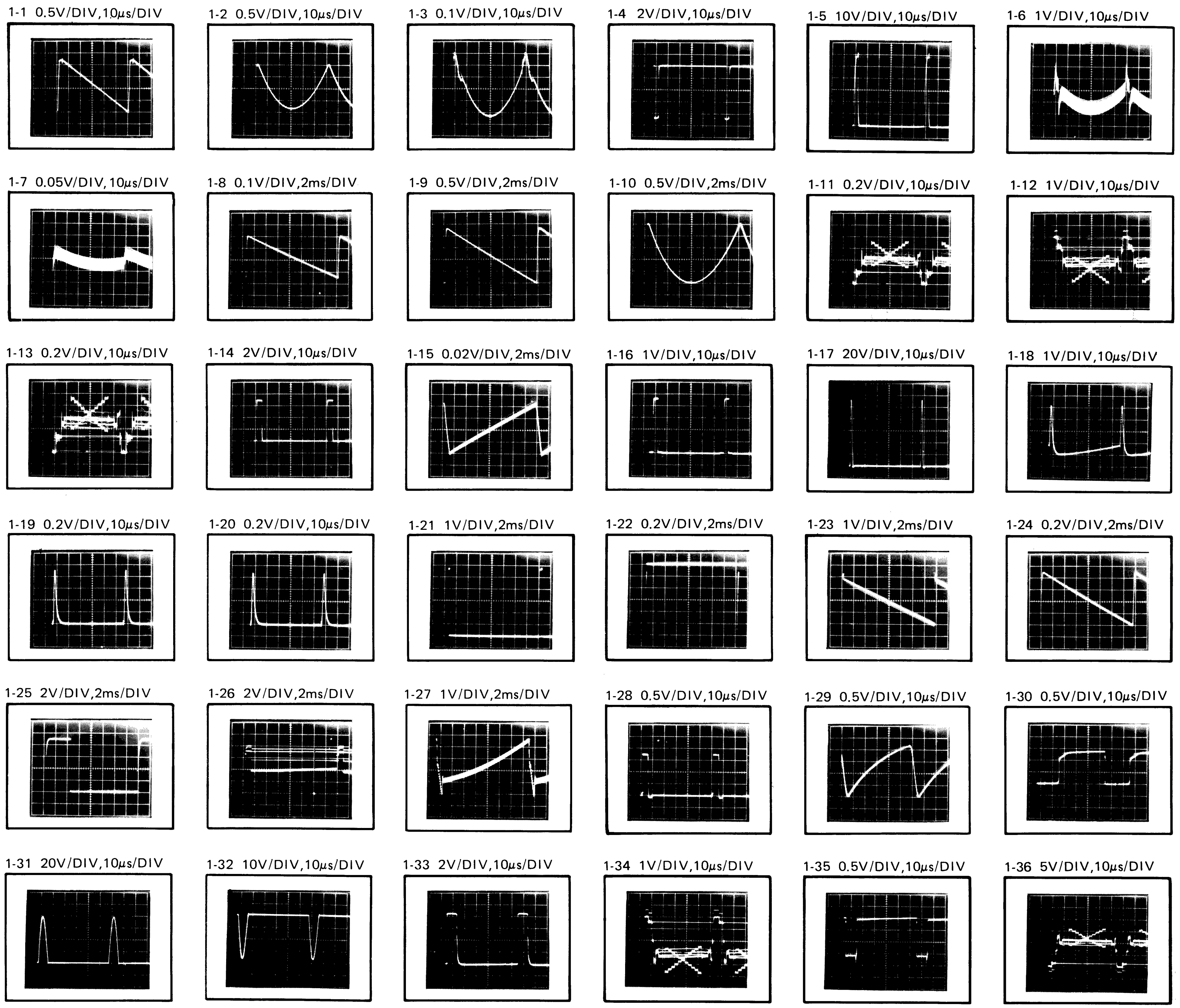


(Dot indicates
pin No. 1 side)

INTERNAL CONNECTION OF BLOCK RESISTORS

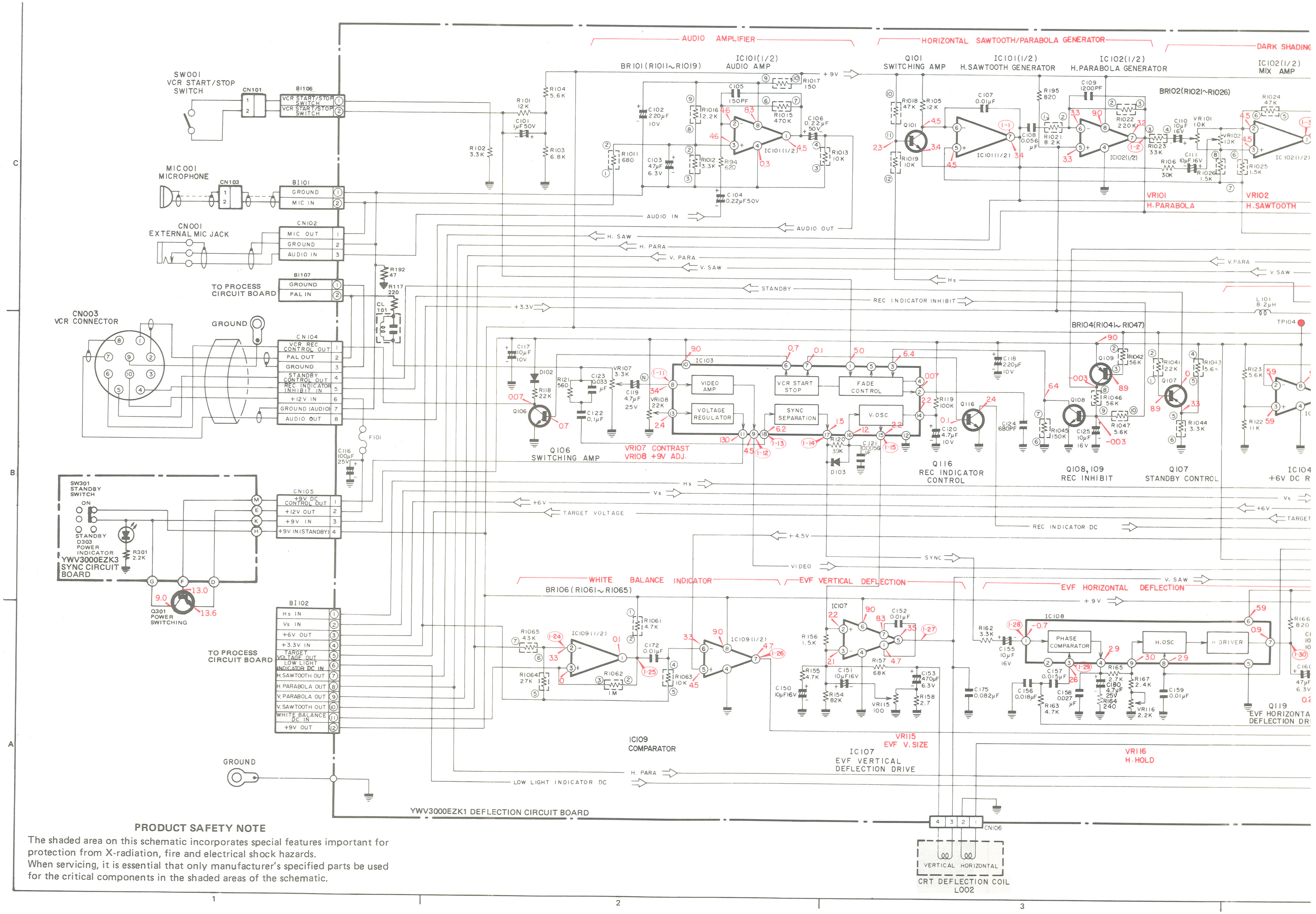

BR101
EXBH89119JB
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫
R1011 680
R1012 3.3K
R1013 10K
R1014 620
R1015 470K
R1016 2.2K
R1017 150
R1018 47K
R1019 10K
BR102
EXBH86120JB
① ② ③ ④ ⑤ ⑥ ⑦ ⑧
R1021 8.2K
R1022 220K
R1023 33K
R1024 47K
R1025 1.5K
R1026 1.5K
BR103
EXBH85149JB
① ② ③ ④ ⑤ ⑥ ⑦
R1031 1.8K
R1032 56K
R1033 18K
R1034 6.8K
R1035 10K
BR104
EXBH87121JB
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩
R1041 22K
R1042 56K
R1043 5.6K
R1044 3.3K
R1045 150K
R1046 56K
R1047 5.6K
BR105
EXBH85178BH
① ② ③ ④ ⑤ ⑥
R1051 15K
R1052 56K
R1053 10K
R1054 10K
R1055 18K
BR106
EXBH85131JB
① ② ③ ④ ⑤ ⑥ ⑦
R1061 4.7K
R1062 1M
R1063 10K
R1064 27K
R1065 43K
BR107
YWA100
① ② ③ ④ ⑤
R1071 6.5M
R1072 4.2M
R1073 1.0M
R1074 1.6M
BR108
EXBH84167JB
① ② ③ ④ ⑤ ⑥
R1081 16K
R1082 18K
R1083 16K
R1084 4.7K

SIGNAL WAVEFORMS OF DEFLECTION CIRCUIT BOARD



SCHEMATIC DIAGRAM

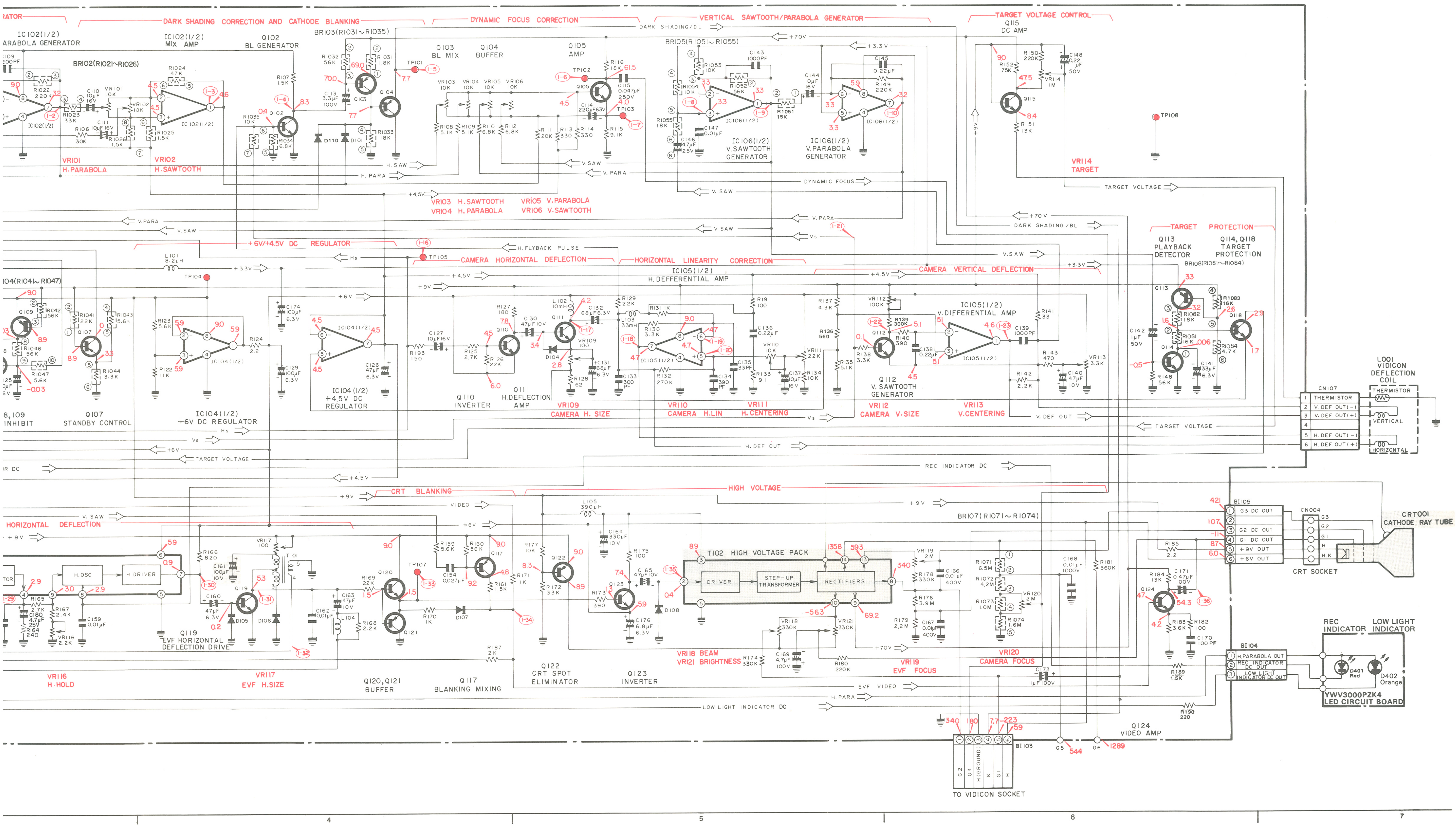
IC101	YHSNJM4558D	C2, C3
IC102	NJM4560D	C3, C4
IC103	AN6055	B2, B3
IC104	NJM4556D	B4
IC105	NJM4556DT	B5, B6
IC106	YHSNJM4558D	C5
IC107	AN374P	A3
IC108	AN5750	A3, A4
IC109	AN6914	A2
Q101	2SC2377-CD	C3
Q102	2SC2377-CD	C4
Q103	2SA749A	C4
Q104	2SA749A	C4
Q105	2SC1980-RST	C5
Q106	2SD636-QRS	B2
Q107	2SB641-QRS	B3
Q108	2SD636-QRS	B3
Q109	2SB641-QRS	B3
Q110	2SD638-QR	B4
Q111	2SD959-PQ	B5
Q112	2SD638-QR	B6
Q113	2SB641-QRS	B6
Q114	2SD636-QRS	B6
Q115	2SC1473NCQRS	C6
Q116	2SD661-TU	B3
Q117	2SB641-QRS	A4
Q118	2SD636-QRS	B6
Q119	2SD866-PQ	A4
Q120	2SC2377-CD	A4
Q121	2SA838-CD	A4
Q122	2SA749A	A5
Q123	2SD638-QR	A5
Q124	2SC1980-RST	A6
Q301	2SA1061-P	A1
D101	MA165	C4
D102	MA165	B2
D103	MA165	B3
D104	MA165	B5
D105	MA165	A4
D106	YUDRU2M	A4
D107	MA165	A4
D108	MA165	A5
D110	MA165	C4
D303	LN217RP	B1
D401	LN23SRP-D	A7
D402	LN43SYP	A7


C
B
A
1
2
3
SW001 VCR START/STOP SWITCH
CN101
B1106
VCR START/STOP SWITCH
MIC001 MICROPHONE
CN103
B1101
GROUND
MIC IN
CN001 EXTERNAL MIC JACK
CN102
MIC OUT
AUDIO IN
TO PROCESS CIRCUIT BOARD
B1107
PAL IN
CN003 VCR CONNECTOR
CN104
VCR REC CONTROL OUT
PAL OUT
STANDBY CONTROL OUT
REC INDICATOR INHIBIT IN
+12V IN
GROUND (AUDIO)
AUDIO OUT
SW301 STANDBY SWITCH
ON
STANDBY
D303 POWER INDICATOR
YWV3000EZK3 SYNC CIRCUIT BOARD
Q301 POWER SWITCHING
CN105
+9V DC CONTROL OUT
+12V OUT
+9V IN
+9V IN(STANDBY)
B1102
Hs IN
Vs IN
+6V OUT
+3.3V IN
TARGET VOLTAGE OUT
LOW LIGHT INDICATOR DC IN
H.SAWTOOTH OUT
H.PARABOLA OUT
V.PARABOLA OUT
V.SAWTOOTH OUT
WHITE BALANCE DC IN
+9V OUT
F101
AUDIO AMPLIFIER
BR101 (R1011~R1019)
IC101(1/2) AUDIO AMP
HORIZONTAL SAWTOOTH/PARABOLA GENERATOR
Q101 SWITCHING AMP
IC101(1/2) H.SAWTOOTH GENERATOR
IC102(1/2) H.PARABOLA GENERATOR
DARK SHADING
IC102(1/2) MIX AMP
BR102(R1021~R1026)
VR101 H.PARABOLA
VR102 H.SAWTOOTH
AUDIO IN
AUDIO OUT
H. SAW
H. PARA
V. PARA
V. SAW
STANDBY
REC INDICATOR INHIBIT
+3.3V
IC103
VIDEO AMP
VCR START STOP
FADE CONTROL
VOLTAGE REGULATOR
SYNC SEPARATION
V. OSC
Q106 SWITCHING AMP
VR107 CONTRAST
VR108 +9V ADJ.
Q116 REC INDICATOR CONTROL
BR104(R1041~R1047)
Q108, 109 REC INHIBIT
Q107 STANDBY CONTROL
IC104 +6V DC R
TP104
Hs
Vs
+6V
TARGET VOLTAGE
REC INDICATOR DC
+4.5V
SYNC
VIDEO
WHITE BALANCE INDICATOR
BR106 (R1061~R1065)
EVF VERTICAL DEFLECTION
EVF HORIZONTAL DEFLECTION
IC108
PHASE COMPARATOR
H.OSC
H DRIVER
IC109 COMPARATOR
IC107 EVF VERTICAL DEFLECTION DRIVE
VR115 EVF V.SIZE
VR116 H.HOLD
Q119 EVF HORIZONTAL DEFLECTION DR
GROUND
LOW LIGHT INDICATOR DC
H. PARA
YWV3000EZK1 DEFLECTION CIRCUIT BOARD
CN106
VERTICAL
HORIZONTAL
CRT DEFLECTION COIL L002

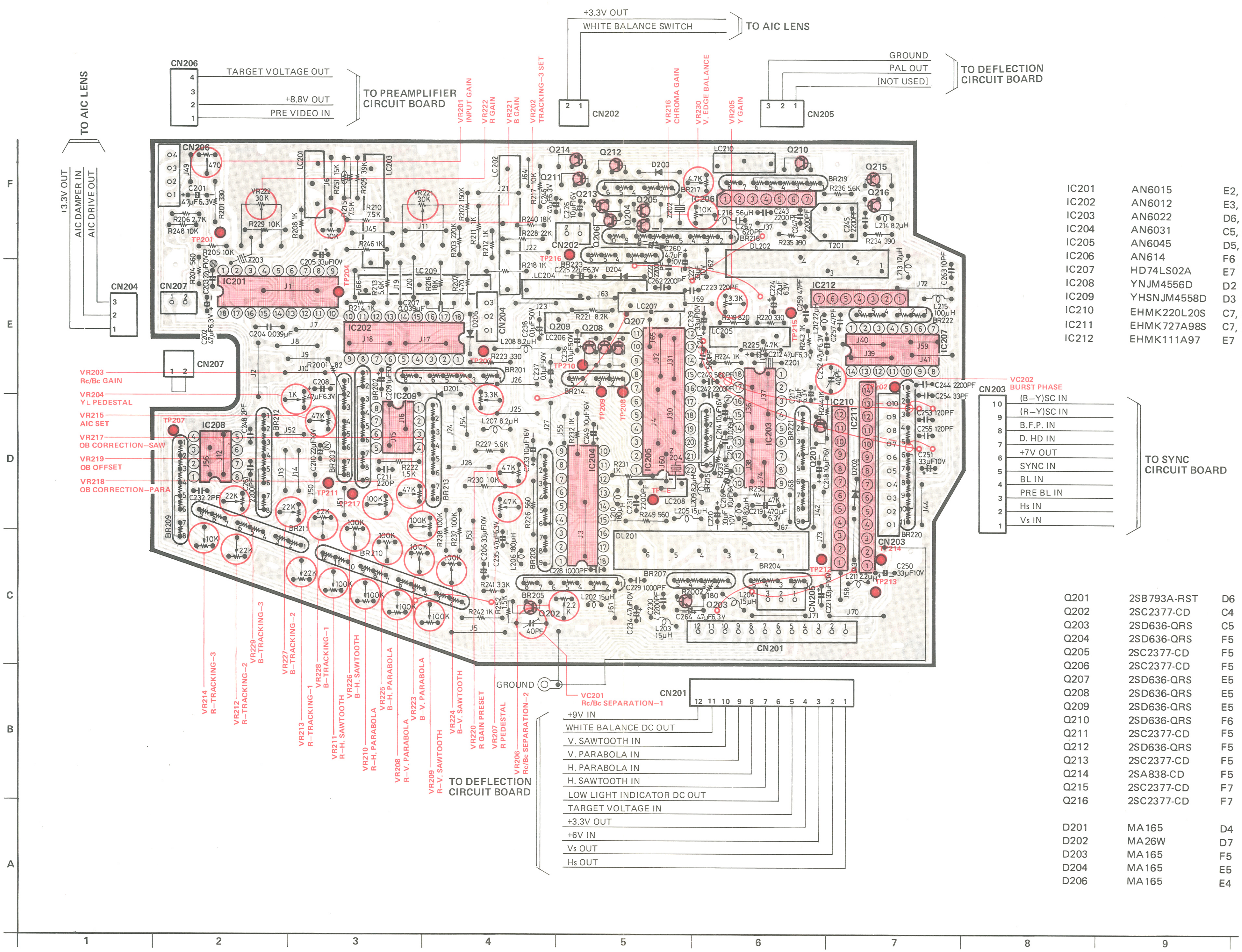
PRODUCT SAFETY NOTE

The shaded area on this schematic incorporates special features important for protection from X-radiation, fire and electrical shock hazards.
When servicing, it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

SCHEMATIC DIAGRAM OF DEFLECTION CIRCUIT BOARD (YWV3000EZK1)


DARK SHADING CORRECTION AND CATHODE BLANKING
IC102(1/2) PARABOLA GENERATOR
IC102(1/2) MIX AMP
Q102 BL GENERATOR
BR102(R1021～R1026)
BR103(R1031～R1035)
DYNAMIC FOCUS CORRECTION
Q103 BL MIX
Q104 BUFFER
Q105 AMP
VERTICAL SAWTOOTH/PARABOLA GENERATOR
BR105(R1051～R1055)
IC106(1/2) V.SAWTOOTH GENERATOR
IC106(1/2) V.PARABOLA GENERATOR
TARGET VOLTAGE CONTROL
Q115 DC AMP
VR114 TARGET
TP101
TP102
TP103
TP104
TP105
TP107
TP108
VR101 H.PARABOLA
VR102 H.SAWTOOTH
VR103 H.SAWTOOTH
VR104 H.PARABOLA
VR105 V.PARABOLA
VR106 V.SAWTOOTH
DARK SHADING/BL
DYNAMIC FOCUS
TARGET VOLTAGE
H. SAW
H. PARA
V. SAW
V. PARA
+70V
+3.3V
+4.5V
+6V
+9V
Vs
Hs
+6V/+4.5V DC REGULATOR
BR104(R1041～R1047)
Q109 INHIBIT
Q107 STANDBY CONTROL
IC104(1/2) +6V DC REGULATOR
IC104(1/2) +4.5V DC REGULATOR
CAMERA HORIZONTAL DEFLECTION
H.FLYBACK PULSE
Q110 INVERTER
Q111 H.DEFLECTION AMP
VR109 CAMERA H. SIZE
HORIZONTAL LINEARITY CORRECTION
IC105(1/2) H.DEFFERENTIAL AMP
VR110 CAMERA H.LIN
VR111 H.CENTERING
CAMERA VERTICAL DEFLECTION
IC105(1/2) V.DIFFERENTIAL AMP
Q112 V.SAWTOOTH GENERATOR
VR112 CAMERA V.SIZE
VR113 V.CENTERING
V. DEF OUT
H. DEF OUT
TARGET PROTECTION
Q113 PLAYBACK DETECTOR
Q114,Q118 TARGET PROTECTION
BR108(R1081～R1084)
L001 VIDICON DEFLECTION COIL
CN107
1 THERMISTOR
2 V. DEF OUT(−)
3 V. DEF OUT(+)
4
5 H. DEF OUT(−)
6 H. DEF OUT(+)
THERMISTOR
VERTICAL
HORIZONTAL
REC INDICATOR DC
HORIZONTAL DEFLECTION
CRT BLANKING
HIGH VOLTAGE
VIDEO
H.OSC
H.DRIVER
VR116 H.HOLD
Q119 EVF HORIZONTAL DEFLECTION DRIVE
VR117 EVF H.SIZE
Q120,Q121 BUFFER
Q117 BLANKING MIXING
Q122 CRT SPOT ELIMINATOR
Q123 INVERTER
T101
T102 HIGH VOLTAGE PACK
DRIVER
STEP-UP TRANSFORMER
RECTIFIERS
VR118 BEAM
VR121 BRIGHTNESS
VR119 EVF FOCUS
VR120 CAMERA FOCUS
BR107(R1071～R1074)
BI105
1 G3 DC OUT
2
3 G2 DC OUT
4 G1 DC OUT
5 +9V OUT
6 +6V OUT
CN004
CRT SOCKET
CRT001 CATHODE RAY TUBE
BI104
1 H.PARABOLA OUT
2 REC INDICATOR DC OUT
3 LOW LIGHT INDICATOR DC OUT
REC INDICATOR
LOW LIGHT INDICATOR
D401 Red
D402 Orange
YWV3000PZK4 LED CIRCUIT BOARD
Q124 VIDEO AMP
EVF VIDEO
LOW LIGHT INDICATOR DC
BI103
G2
G4
H(GROUND)
K
G1
H
G5
G6
TO VIDICON SOCKET
4
5
6
7

CONDUCTOR VIEW OF PROCESS CIRCUIT BOARD (YWV3000EZK2)

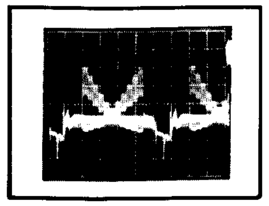

+3.3V OUT
WHITE BALANCE SWITCH
TO AIC LENS
CN202
GROUND
PAL OUT
[NOT USED]
TO DEFLECTION CIRCUIT BOARD
CN205
CN206
TARGET VOLTAGE OUT
+8.8V OUT
PRE VIDEO IN
TO PREAMPLIFIER CIRCUIT BOARD
TO AIC LENS
+3.3V OUT
AIC DAMPER IN
AIC DRIVE OUT
CN204
CN207
VR201 INPUT GAIN
VR222 R GAIN
VR221 B GAIN
VR202 TRACKING-3 SET
VR216 CHROMA GAIN
VR230 V. EDGE BALANCE
VR205 Y GAIN
VR203 Rc/Bc GAIN
VR204 YL PEDESTAL
VR215 AIC SET
VR217 OB CORRECTION–SAW
VR219 OB OFFSET
VR218 OB CORRECTION–PARA
VC202 BURST PHASE
CN203
(B–Y)SC IN
(R–Y)SC IN
B.F.P. IN
D. HD IN
+7V OUT
SYNC IN
BL IN
PRE BL IN
Hs IN
Vs IN
TO SYNC CIRCUIT BOARD
IC201
IC202
IC203
IC204
IC205
IC206
IC207
IC208
IC209
IC210
IC211
IC212
Q201
Q202
Q203
Q204
Q205
Q206
Q207
Q208
Q209
Q210
Q211
Q212
Q213
Q214
Q215
Q216
VR214 R–TRACKING–3
VR212 R–TRACKING–2
VR229 B–TRACKING–3
VR227 B–TRACKING–2
VR213 R–TRACKING–1
VR228 B–TRACKING–1
VR211 R–H. SAWTOOTH
VR226 B–H. SAWTOOTH
VR210 R–H. PARABOLA
VR225 B–H. PARABOLA
VR208 R–V. PARABOLA
VR223 B–V. PARABOLA
VR209 R–V. SAWTOOTH
VR224 B–V. SAWTOOTH
VR220 R GAIN PRESET
VR207 R PEDESTAL
VR206 Rc/Bc SEPARATION–2
VC201 Rc/Bc SEPARATION–1
GROUND
TO DEFLECTION CIRCUIT BOARD
CN201
+9V IN
WHITE BALANCE DC OUT
V. SAWTOOTH IN
V. PARABOLA IN
H. PARABOLA IN
H. SAWTOOTH IN
LOW LIGHT INDICATOR DC OUT
TARGET VOLTAGE IN
+3.3V OUT
+6V IN
Vs OUT
Hs OUT
A
B
C
D
E
F
1
2
3
4
5
6
7
8
9

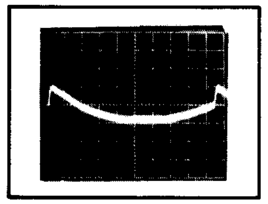
IC201	AN6015	E2, E3
IC202	AN6012	E3, E4
IC203	AN6022	D6, E6
IC204	AN6031	C5, D5
IC205	AN6045	D5, E5
IC206	AN614	F6
IC207	HD74LS02A	E7
IC208	YNJM4556D	D2
IC209	YHSNJM4558D	D3
IC210	EHMK220L20S	C7, D7
IC211	EHMK727A98S	C7, D7
IC212	EHMK111A97	E7

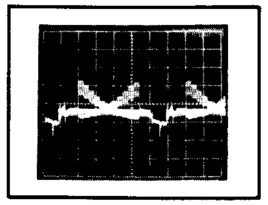
Q201	2SB793A-RST	D6
Q202	2SC2377-CD	C4
Q203	2SD636-QRS	C5
Q204	2SD636-QRS	F5
Q205	2SC2377-CD	F5
Q206	2SC2377-CD	F5
Q207	2SD636-QRS	E5
Q208	2SD636-QRS	E5
Q209	2SD636-QRS	E5
Q210	2SD636-QRS	F6
Q211	2SC2377-CD	F5
Q212	2SD636-QRS	F5
Q213	2SC2377-CD	F5
Q214	2SA838-CD	F5
Q215	2SC2377-CD	F7
Q216	2SC2377-CD	F7

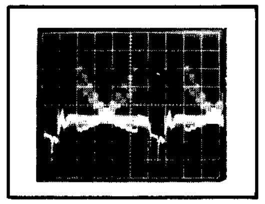
D201	MA165	D4
D202	MA26W	D7
D203	MA165	F5
D204	MA165	E5
D206	MA165	E4

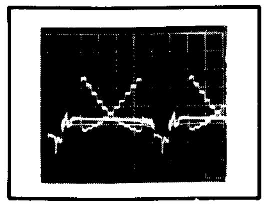
SIGNAL WAVEFORMS OF PROCESS CIRCUIT BOARD

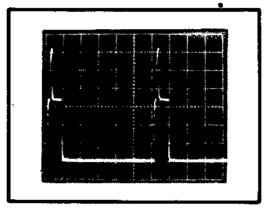

2-1 0.2V/DIV,10μs/DIV

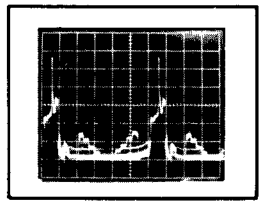

2-2 0.02V/DIV,2ms/DIV

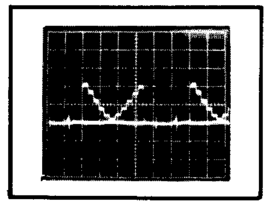

2-3 0.2V/DIV,10μs/DIV

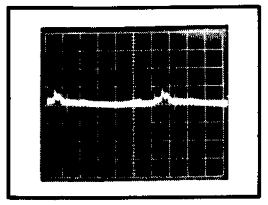

2-4 0.2V/DIV,10μs/DIV

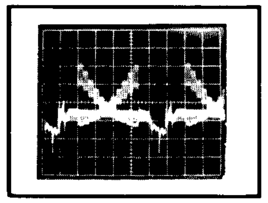

2-5 0.2V/DIV,10μs/DIV

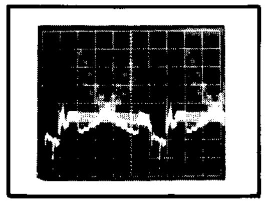

2-6 1V/DIV,10μs/DIV

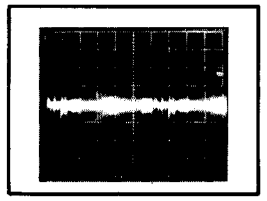

2-7 0.2V/DIV,10μs/DIV

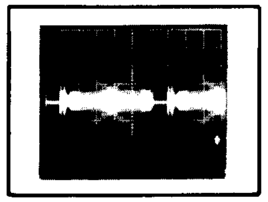

2-8 0.2V/DIV,10μs/DIV

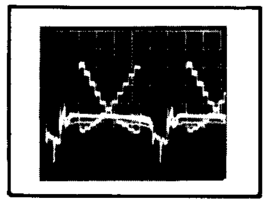

2-9 0.05V/DIV,10μs/DIV

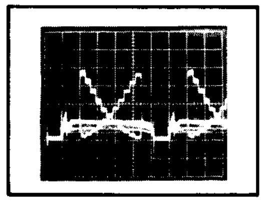

2-10 0.2V/DIV,10μs/DIV

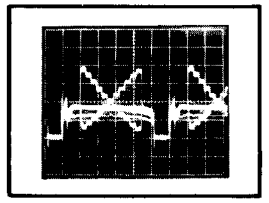

2-11 0.5V/DIV,10μs/DIV

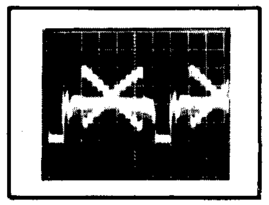

2-12 0.02V/DIV,10μs/DIV

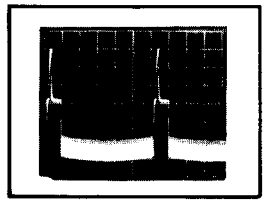

2-13 0.2V/DIV,10μs/DIV

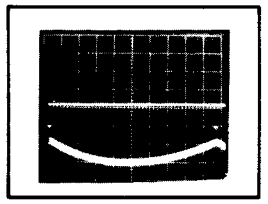

2-14 0.2V/DIV,10μs/DIV

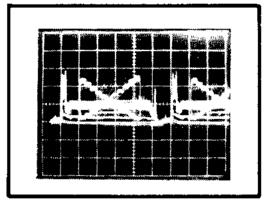

2-15 0.2V/DIV,10μs/DIV

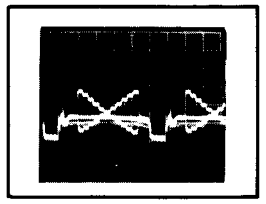

2-16 0.1V/DIV,10μs/DIV

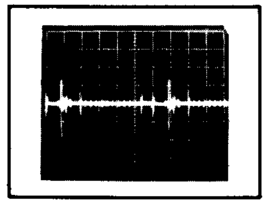

2-17 0.05V/DIV,10μs/DIV

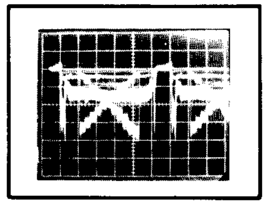

2-18 1V/DIV,10μs/DIV

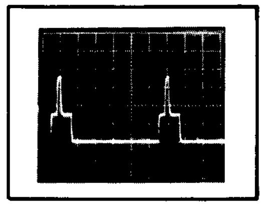

2-18 1V/DIV,2ms/DIV

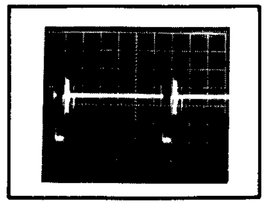

2-19 0.05V/DIV,10μs/DIV

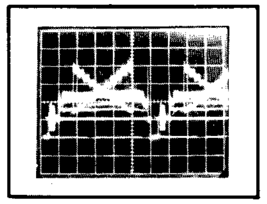

2-20 0.05V/DIV,10μs/DIV

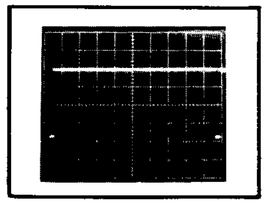

2-21 0.5V/DIV,10μs/DIV

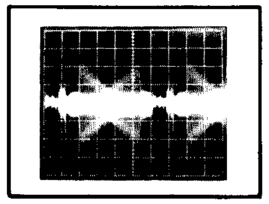

2-22 0.2V/DIV,10μs/DIV


2-23 2V/DIV,10μs/DIV


2-24 0.1V/DIV,10μs/DIV

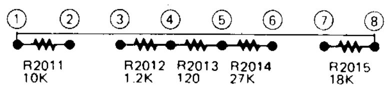

2-25 0.5V/DIV,10μs/DIV


2-26 1V/DIV,2ms/DIV

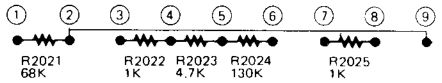

2-27 0.02V/DIV,10μs/DIV

INTERNAL CONNECTION OF BLOCK RESISTORS

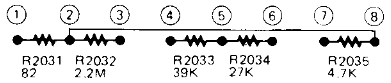
BR201
EXBH85146JB


① ② ③ ④ ⑤ ⑥ ⑦ ⑧
R2011 10K
R2012 1.2K
R2013 120
R2014 27K
R2015 18K

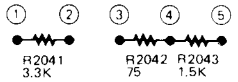
BR202
EXBH85217JB


① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
R2021 68K
R2022 1K
R2023 4.7K
R2024 130K
R2025 1K

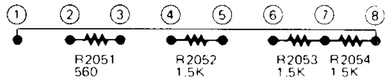
BR203
EXBH85218SB


① ② ③ ④ ⑤ ⑥ ⑦ ⑧
R2031 82
R2032 2.2M
R2033 39K
R2034 27K
R2035 4.7K

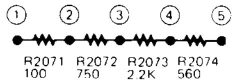
BR204
EXBH83177JB


① ② ③ ④ ⑤
R2041 3.3K
R2042 75
R2043 1.5K

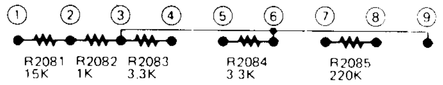
BR205
EXBH84155JB


① ② ③ ④ ⑤ ⑥ ⑦ ⑧
R2051 560
R2052 1.5K
R2053 1.5K
R2054 1.5K

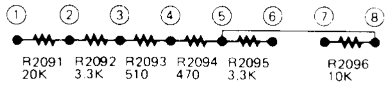
BR207
EXBH84156JB


① ② ③ ④ ⑤
R2071 100
R2072 750
R2073 2.2K
R2074 560

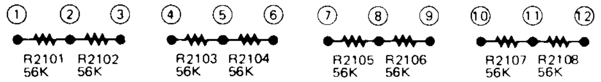
BR208
EXBH85145JB


① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
R2081 15K
R2082 1K
R2083 3.3K
R2084 3.3K
R2085 220K

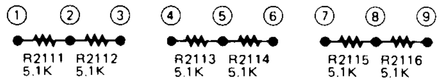
BR209
EXBH86126JB


① ② ③ ④ ⑤ ⑥ ⑦ ⑧
R2091 20K
R2092 3.3K
R2093 510
R2094 470
R2095 3.3K
R2096 10K

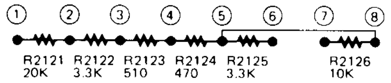
BR210
EXBH88117KB


① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫
R2101 56K
R2102 56K
R2103 56K
R2104 56K
R2105 56K
R2106 56K
R2107 56K
R2108 56K

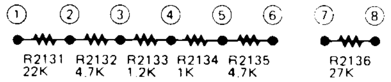
BR211
EXBH86118KB


① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
R2111 5.1K
R2112 5.1K
R2113 5.1K
R2114 5.1K
R2115 5.1K
R2116 5.1K

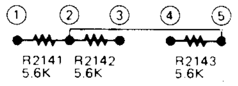
BR212
EXBH86126JB


① ② ③ ④ ⑤ ⑥ ⑦ ⑧
R2121 20K
R2122 3.3K
R2123 510
R2124 470
R2125 3.3K
R2126 10K

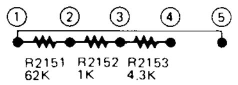
BR213
EXBH86128JB


① ② ③ ④ ⑤ ⑥ ⑦ ⑧
R2131 22K
R2132 4.7K
R2133 1.2K
R2134 1K
R2135 4.7K
R2136 27K

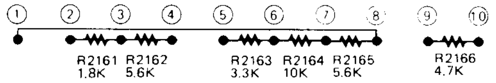
BR214
EXBH83141JB


① ② ③ ④ ⑤
R2141 5.6K
R2142 5.6K
R2143 5.6K

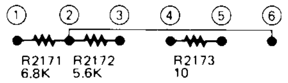
BR215
EXBH83189JB


① ② ③ ④ ⑤
R2151 62K
R2152 1K
R2153 4.3K

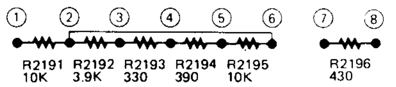
BR216
EXBH86198JB


① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩
R2161 1.8K
R2162 5.6K
R2163 3.3K
R2164 10K
R2165 5.6K
R2166 4.7K

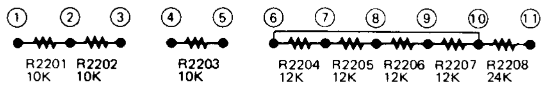
BR217
EXBH83130SB


① ② ③ ④ ⑤ ⑥
R2171 6.8K
R2172 5.6K
R2173 10

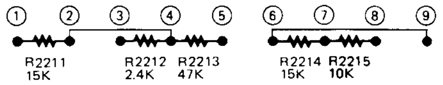
BR219
EXBH86127JB


① ② ③ ④ ⑤ ⑥ ⑦ ⑧
R2191 10K
R2192 3.9K
R2193 330
R2194 390
R2195 10K
R2196 430

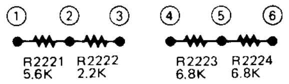
BR220
EXBH88171JB


① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪
R2201 10K
R2202 10K
R2203 10K
R2204 12K
R2205 12K
R2206 12K
R2207 12K
R2208 24K

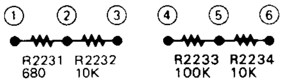
BR221
EXBH85199JB


① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
R2211 15K
R2212 2.4K
R2213 47K
R2214 15K
R2215 10K

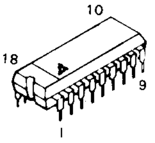
BR222
EXBH84174JB


① ② ③ ④ ⑤ ⑥
R2221 5.6K
R2222 2.2K
R2223 6.8K
R2224 6.8K

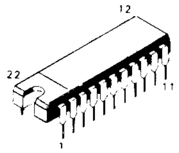
BR223
EXBH84129JB


① ② ③ ④ ⑤ ⑥
R2231 680
R2232 10K
R2233 100K
R2234 10K

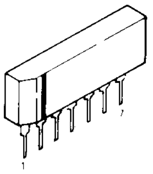
AN6012
AN6015
AN6022
AN6031



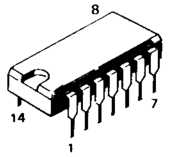
AN6045



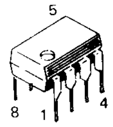
AN614



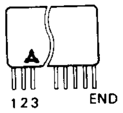
HD74LS02A



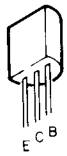
NJM4556D
YHSNJM4558D



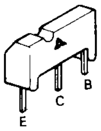
EHMK111A97
EHMK220LS20
EHMK727A98S



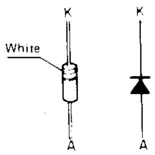
2SA838-CD



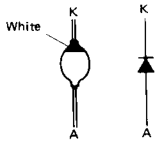
2SB793-RST
2SC2377-CD
2SD636-QRS



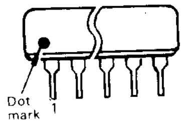
MA165



MA26W



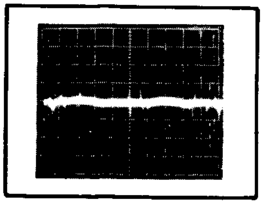
BLOCK RESISTOR



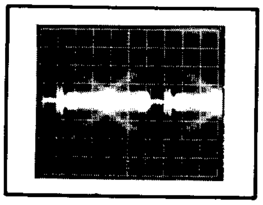
(Dot indicates pin No. 1 side)

SIGNAL WAVEFORMS OF PROCESS CIRCUIT BOARD

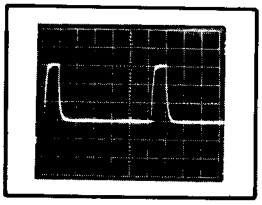
2-28 0.02V/DIV,2ms/DIV



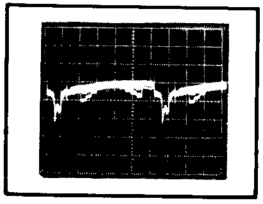
2-29 0.05V/DIV,10μs/DIV



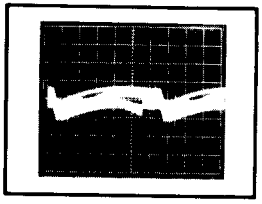
2-30 2V/DIV,10μs/DIV



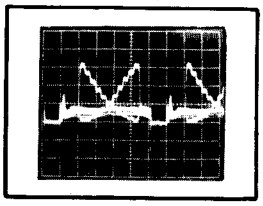
2-31 0.1V/DIV,10μs/DIV



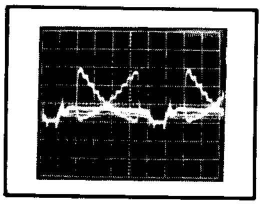
2-32 0.05V/DIV,10μs/DIV



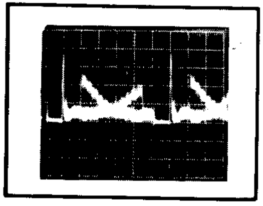
2-33 0.2V/DIV,10μs/DIV



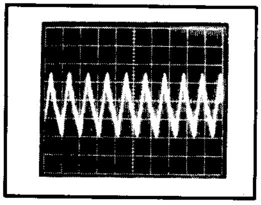
2-34 0.2V/DIV,10μs/DIV



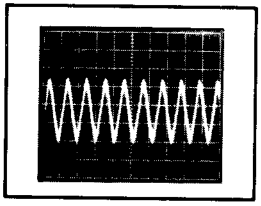
2-35 0.2V/DIV,10μs/DIV



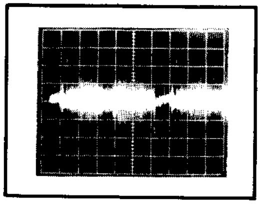
2-36 0.05V/DIV,0.2μs/DIV



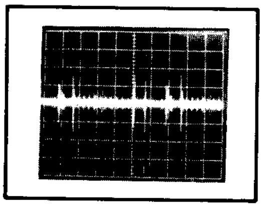
2-37 0.05V/DIV,0.2μs/DIV



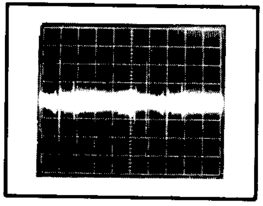
2-38 0.1V/DIV,10μs/DIV



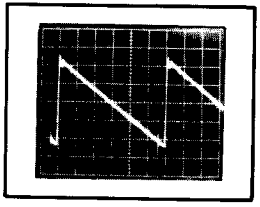
2-39 0.1V/DIV,10μs/DIV



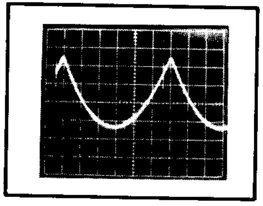
2-40 0.02V/DIV,10μs/DIV



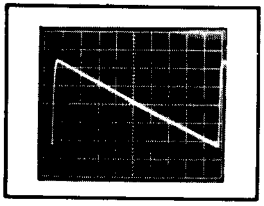
2-41 0.5V/DIV,10μs/DIV



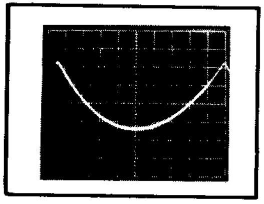
2-42 0.5V/DIV,10μs/DIV



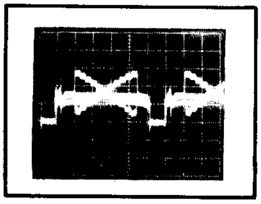
2-43 0.5V/DIV,2ms/DIV



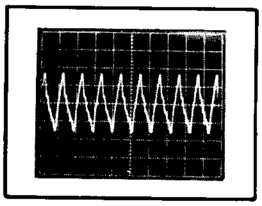
2-44 0.5V/DIV,2ms/DIV



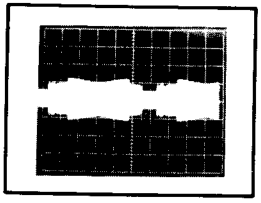
2-45 0.05V/DIV,10μs/DIV



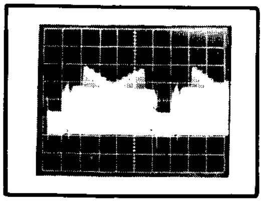
2-46 0.1V/DIV,0.2μs/DIV



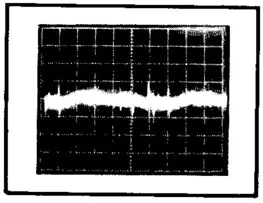
2-47 0.5V/DIV,10μs/DIV



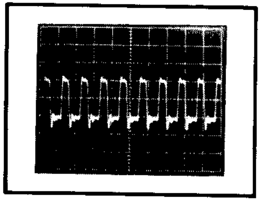
2-48 0.05V/DIV,10μs/DIV



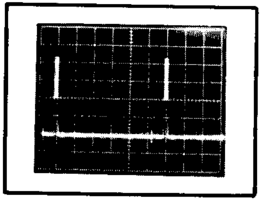
2-49 0.05V/DIV,10μs/DIV



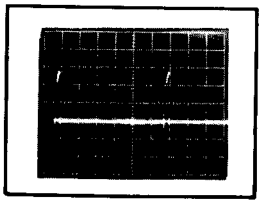
2-50 2V/DIV,0.02μs/DIV



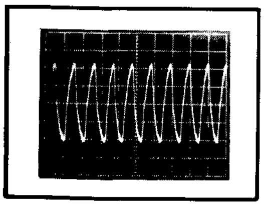
2-51 0.5V/DIV,10μs/DIV



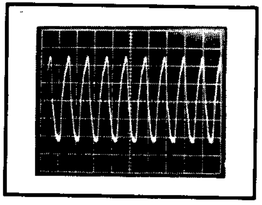
2-52 2V/DIV,10μs/DIV



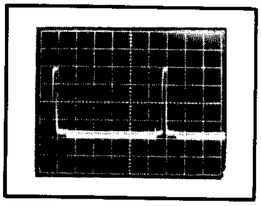
2-53 0.5V/DIV,0.2μs/DIV



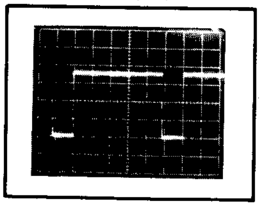
2-54 0.5V/DIV,0.2μs/DIV



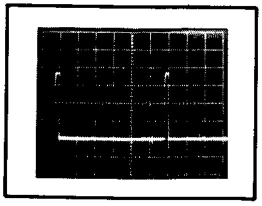
2-55 2V/DIV,10μs/DIV



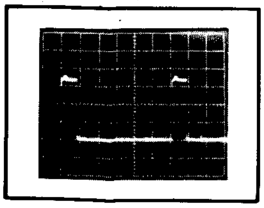
2-56 2V/DIV,10μs/DIV



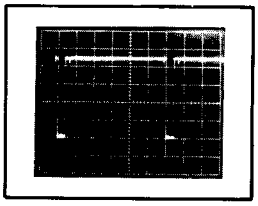
2-57 2V/DIV,10μs/DIV



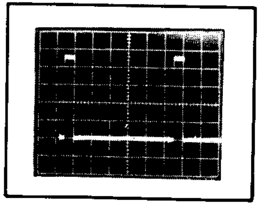
2-58 2V/DIV,10μs/DIV



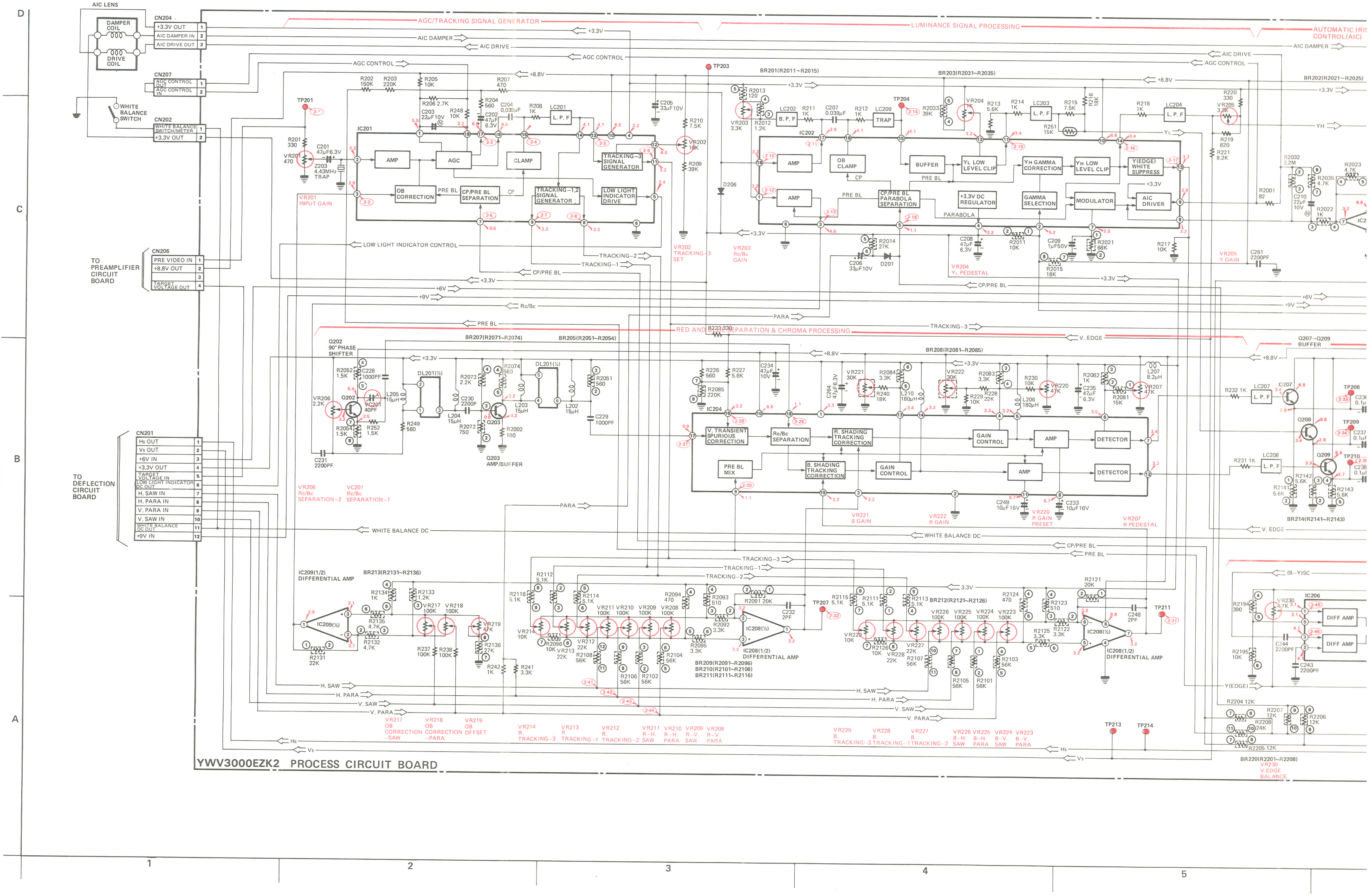
2-59 1V/DIV,10μs/DIV



2-60 1V/DIV,10μs/DIV

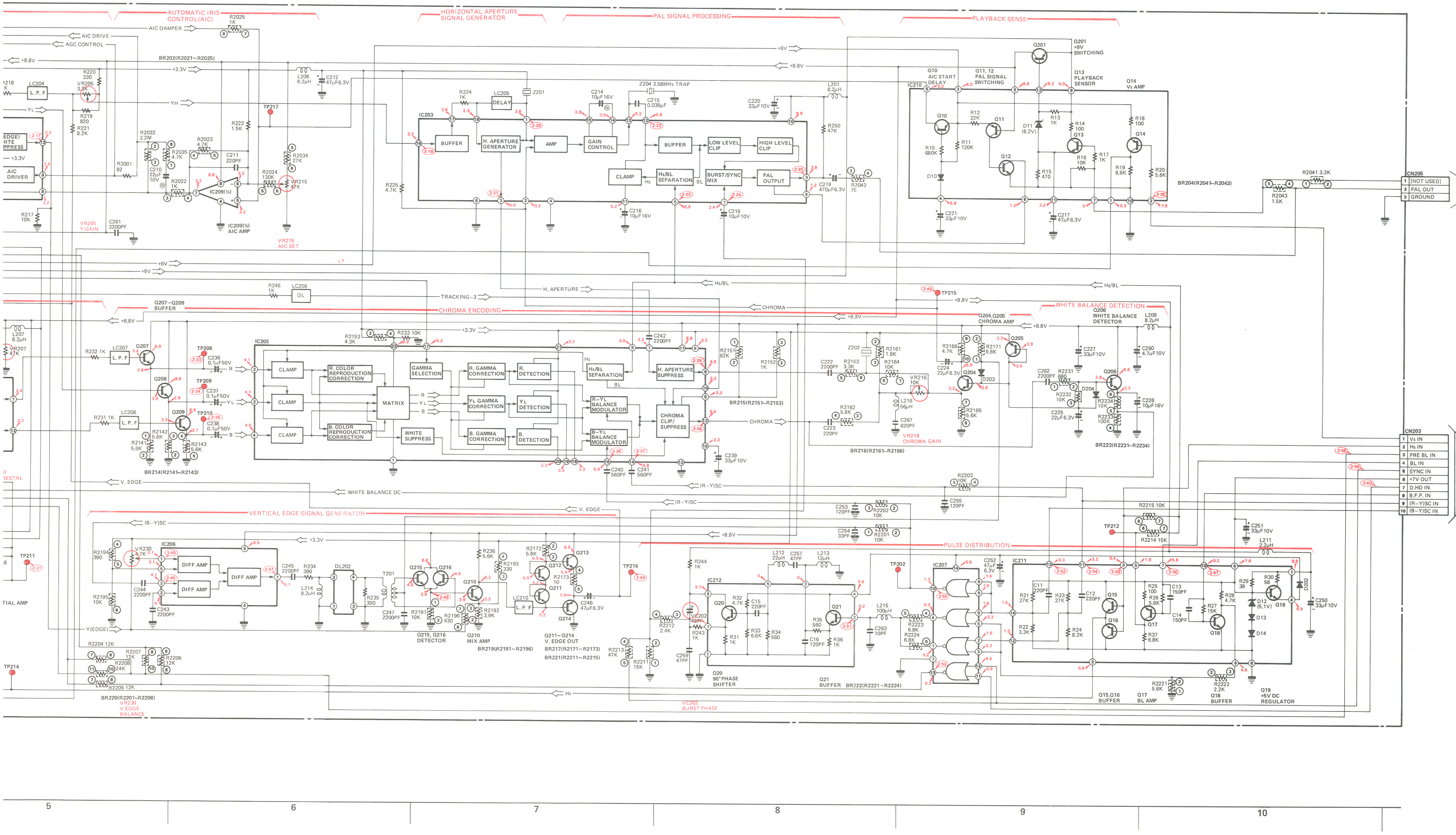


IC201	AN6015	C2, C3
IC202	AN6012	C4, C5
IC203	AN6022	C7, C8
IC204	AN6031	B3, B4, B5
IC205	AN6045	B6, B7, B8
IC206	AN614	A6
IC207	HD74LS02A	A9
IC208	YNJM4556D	A3, A5
IC209	YHSNJM4558D	A2, C6
IC210	EHMK220L20S	C9, C10
IC211	EHMK727A98S	A9, A10
IC212	EHMK111A97	A8
Q201	2SB793A-RST	D9
Q202	2SC2377-CD	B2
Q203	2SD636-QRS	B2
Q204	2SD636-QRS	B9
Q205	2SC2377-CD	B9
Q206	2SC2377-CD	B9
Q207	2SD636-QRS	B5
Q208	2SD636-QRS	B6
Q209	2SD636-QRS	B6
Q210	2SD636-QRS	A7
Q211	2SC2377-CD	A7
Q212	2SD636-QRS	A7
Q213	2SC2377-CD	A7
Q214	2SA838-CD	A7
Q215	2SC2377-CD	A7
Q216	2SC2377-CD	A7
D201	MA165	C4
D202	MA26W	A10
D203	MA165	B9
D204	MA165	B9
D206	MA165	C3

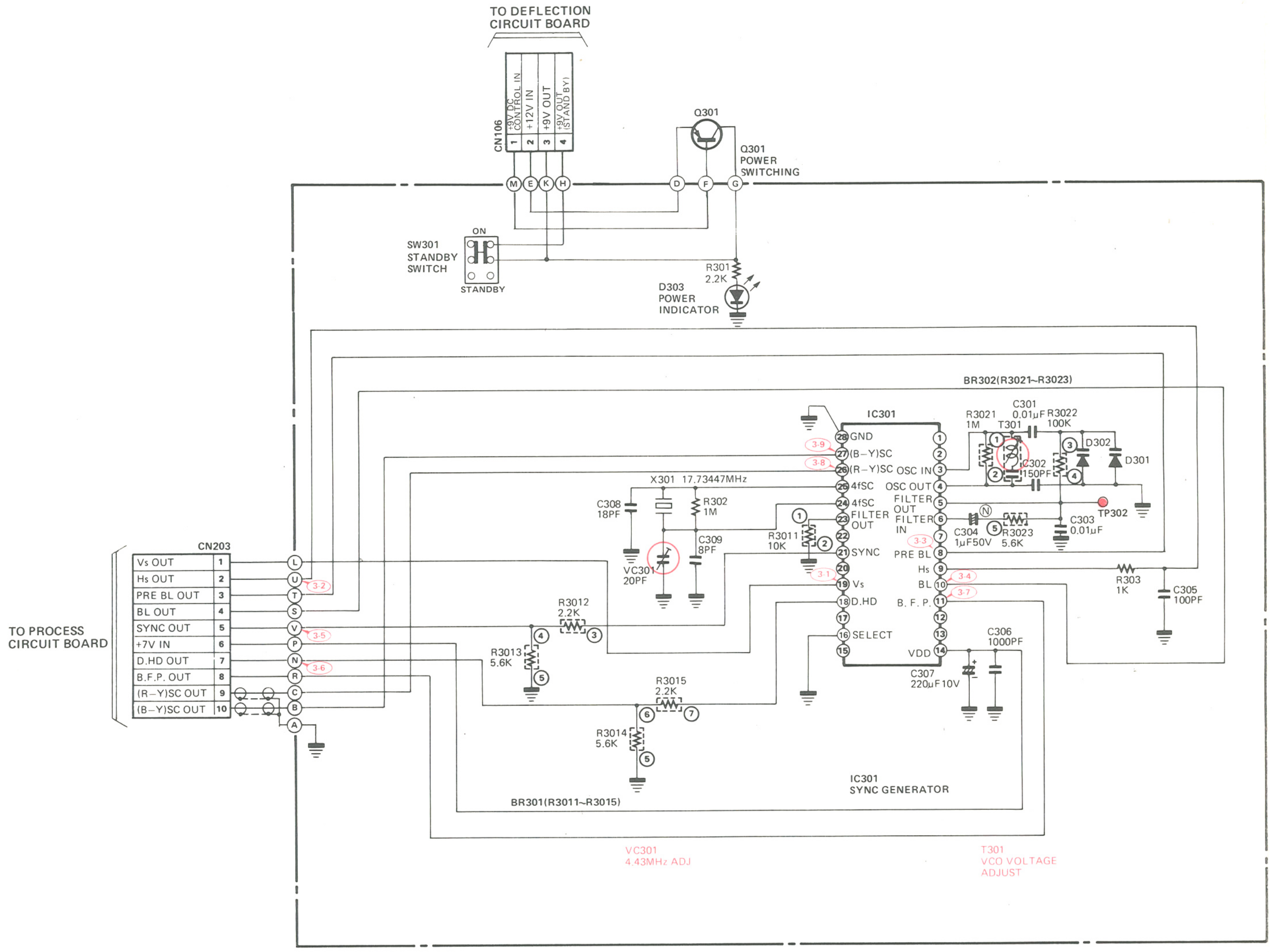

D
C
B
A
1
2
3
4
5
AIC LENS
DAMPER COIL
DRIVE COIL
CN204
+3.3V OUT
AIC DAMPER IN
AIC DRIVE OUT
CN207
AGC CONTROL OUT
AGC CONTROL IN
WHITE BALANCE SWITCH
CN202
WHITE BALANCE SWITCH/METER
+3.3V OUT
AGC/TRACKING SIGNAL GENERATOR
LUMINANCE SIGNAL PROCESSING
AUTOMATIC IRIS CONTROL(AIC)
AIC DAMPER
AIC DRIVE
AGC CONTROL
+3.3V
+8.8V
TP201
TP203
TP204
IC201
IC202
AMP
AGC
CLAMP
OB CORRECTION
CP/PRE BL SEPARATION
TRACKING-3 SIGNAL GENERATOR
TRACKING-1,2 SIGNAL GENERATOR
LOW LIGHT INDICATOR DRIVE
VR201 INPUT GAIN
VR202 TRACKING-3 SET
VR203 Rc/Bc GAIN
B.P.F
L.P.F
TRAP
OB CLAMP
BUFFER
YL LOW LEVEL CLIP
YH GAMMA CORRECTION
YH LOW LEVEL CLIP
Y(EDGE) WHITE SUPPRESS
CP/PRE BL PARABOLA SEPARATION
+3.3V DC REGULATOR
GAMMA SELECTION
MODULATOR
AIC DRIVER
PARABOLA
VR204 YL PEDESTAL
VR205 Y GAIN
BR201(R2011~R2015)
BR203(R2031~R2035)
BR202(R2021~R2025)
LOW LIGHT INDICATOR CONTROL
TRACKING-2
TRACKING-1
CP/PRE BL
CN206
TO PREAMPLIFIER CIRCUIT BOARD
PRE VIDEO IN
+8.8V OUT
TARGET VOLTAGE OUT
+6V
+9V
Rc/Bc
PRE BL
PARA
TRACKING-3
YL
YH
V. EDGE
RED AND BLUE SEPARATION & CHROMA PROCESSING
Q202 90° PHASE SHIFTER
Q203 AMP/BUFFER
BR207(R2071~R2074)
BR205(R2051~R2054)
BR208(R2081~R2085)
DL201(½)
VR206 Rc/Bc SEPARATION-2
VC201 Rc/Bc SEPARATION-1
IC204
V. TRANSIENT SPURIOUS CORRECTION
Rc/Bc SEPARATION
R. SHADING TRACKING CORRECTION
GAIN CONTROL
AMP
DETECTOR
PRE BL MIX
B. SHADING TRACKING CORRECTION
VR221 B GAIN
VR222 R GAIN
VR220 R GAIN PRESET
VR207 R PEDESTAL
Q207~Q209 BUFFER
TP208
TP209
TP210
BR214(R2141~R2143)
CN201
TO DEFLECTION CIRCUIT BOARD
Hs OUT
Vs OUT
+6V IN
+3.3V OUT
TARGET VOLTAGE IN
LOW LIGHT INDICATOR DC OUT
H. SAW IN
H. PARA IN
V. PARA IN
V. SAW IN
WHITE BALANCE DC OUT
+9V IN
WHITE BALANCE DC
IC209(1/2) DIFFERENTIAL AMP
BR213(R2131~R2136)
IC209(½)
IC208(½)
IC208(1/2) DIFFERENTIAL AMP
BR209(R2091~R2096)
BR210(R2101~R2108)
BR211(R2111~R2116)
BR212(R2121~R2126)
TP207
TP211
TP213
TP214
H. SAW
H. PARA
V. SAW
V. PARA
Hs
Vs
VR217 OB CORRECTION -SAW
VR218 OB CORRECTION -PARA
VR219 OB OFFSET
VR214 R. TRACKING-3
VR213 R. TRACKING-1
VR212 R. TRACKING-2
VR211 R-H. SAW
VR210 R-H. PARA
VR209 R-V. SAW
VR208 R-V. PARA
VR229 B. TRACKING-3
VR228 B. TRACKING-1
VR227 B. TRACKING-2
VR226 B-H. SAW
VR225 B-H. PARA
VR224 B-V. SAW
VR223 B-V. PARA
IC206
DIFF AMP
(B-Y)SC
Y(EDGE)
BR220(R2201~R2208)
VR230 V.EDGE BALANCE

YWV3000EZK2 PROCESS CIRCUIT BOARD

IATIC DIAGRAM OF PROCESS CIRCUIT BOARD (YWV3000EZK2)

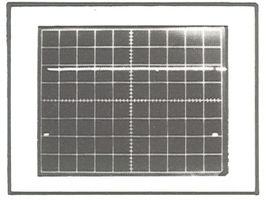

AUTOMATIC IRIS CONTROL(AIC)
AIC DAMPER
AIC DRIVE
AGC CONTROL
HORIZONTAL APERTURE SIGNAL GENERATOR
PAL SIGNAL PROCESSING
PLAYBACK SENSE
IC203
BUFFER
H. APERTURE GENERATOR
AMP
GAIN CONTROL
LOW LEVEL CLIP
HIGH LEVEL CLIP
CLAMP
Hs/BL SEPARATION
BURST/SYNC MIX
PAL OUTPUT
Z204 3.58MHz TRAP
IC209(½) AIC AMP
VR205 Y GAIN
VR215 AIC SET
IC210
Q10 AIC START DELAY
Q11, 12 PAL SIGNAL SWITCHING
Q13 PLAYBACK SENSOR
Q14 Vs AMP
Q201 +9V SWITCHING
BR204(R2041~R2043)
CN205
1 (NOT USED)
2 PAL OUT
3 GROUND
TO DEFLECTION CIRCUIT BOARD
Q207~Q209 BUFFER
CHROMA ENCODING
IC205
CLAMP
R. COLOR REPRODUCTION CORRECTION
B. COLOR REPRODUCTION CORRECTION
GAMMA SELECTION
MATRIX
WHITE SUPPRESS
R. GAMMA CORRECTION
YL GAMMA CORRECTION
B. GAMMA CORRECTION
R. DETECTION
YL DETECTION
B. DETECTION
Hs/BL SEPARATION
R−YL BALANCE MODULATOR
B−YL BALANCE MODULATOR
H. APERTURE SUPPRESS
CHROMA CLIP/ SUPPRESS
BR214(R2141~R2143)
BR215(R2151~R2153)
Q204,Q205 CHROMA AMP
VR216 CHROMA GAIN
BR216(R2161~R2166)
WHITE BALANCE DETECTION
Q206 WHITE BALANCE DETECTOR
BR223(R2231~R2234)
CN203
1 Vs IN
2 Hs IN
3 PRE BL IN
4 BL IN
5 SYNC IN
6 +7V OUT
7 D.HD IN
8 B.F.P. IN
9 (R−Y)SC IN
10 (B−Y)SC IN
TO SYNC CIRCUIT BOARD
VERTICAL EDGE SIGNAL GENERATOR
IC206
DIFF AMP
Q215, Q216 DETECTOR
Q210 MIX AMP
Q211~Q214 V. EDGE OUT
BR219(R2191~R2196)
BR217(R2171~R2173)
BR221(R2211~R2215)
BR220(R2201~R2208)
VR230 V.EDGE BALANCE
VC202 BURST PHASE
PULSE DISTRIBUTION
IC212
Q20 90°PHASE SHIFTER
Q21 BUFFER
BR222(R2221~R2224)
IC207
IC211
Q15,Q16 BUFFER
Q17 BL AMP
Q18 BUFFER
Q19 +5V DC REGULATOR
TP207 TP208 TP209 TP210 TP211 TP212 TP214 TP215 TP216 TP217 TP202
5
6
7
8
9
10

SCHEMATIC DIAGRAM OF SYNC CIRCUIT BOARD (YWV3000EZK3)

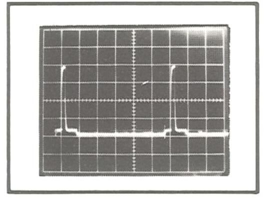

TO DEFLECTION CIRCUIT BOARD
CN106
1 +9V DC CONTROL IN
2 +12V IN
3 +9V OUT
4 +9V OUT (STAND BY)
Q301
Q301 POWER SWITCHING
SW301 STANDBY SWITCH
ON
STANDBY
R301 2.2K
D303 POWER INDICATOR
BR302(R3021~R3023)
IC301
R3021 1M
C301 0.01μF
R3022 100K
T301
C302 150PF
D302
D301
X301 17.73447MHz
C308 18PF
R302 1M
C309 8PF
VC301 20PF
R3011 10K
28 GND
27 (B−Y)SC
26 (R−Y)SC
25 4fSC
24 4fSC
23 FILTER OUT
22
21 SYNC
20
19 Vs
18 D.HD
17
16 SELECT
15
1
2
3 OSC IN
4 OSC OUT
5 FILTER OUT
6 FILTER IN
7
8 PRE BL
9 Hs
10 BL
11 B. F. P.
12
13
14 VDD
3-9
3-8
3-1
3-3
3-4
3-7
TP302
C304 1μF50V
R3023 5.6K
C303 0.01μF
R303 1K
C305 100PF
C306 1000PF
C307 220μF10V
CN203
Vs OUT 1
Hs OUT 2
PRE BL OUT 3
BL OUT 4
SYNC OUT 5
+7V IN 6
D.HD OUT 7
B.F.P. OUT 8
(R−Y)SC OUT 9
(B−Y)SC OUT 10
TO PROCESS CIRCUIT BOARD
3-2
3-5
3-6
R3012 2.2K
R3013 5.6K
R3015 2.2K
R3014 5.6K
BR301(R3011~R3015)
IC301 SYNC GENERATOR
VC301 4.43MHz ADJ
T301 VCO VOLTAGE ADJUST

SIGNAL WAVEFORMS OF SYNC CIRCUIT BOARD

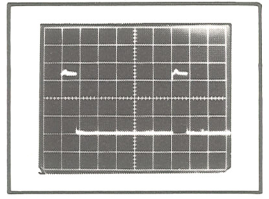
3-1 1V/DIV, 2ms/DIV



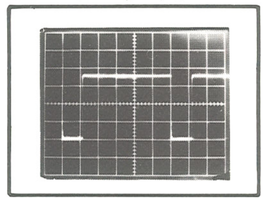
3-2 2V/DIV, 10μs/DIV



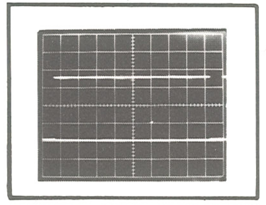
3-3 2V/DIV, 10μs/DIV



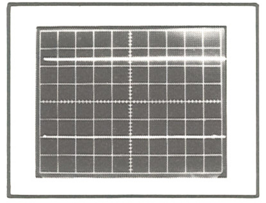
3-4 2V/DIV, 10μs/DIV



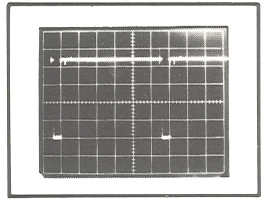
3-4 2V/DIV, 2ms/DIV



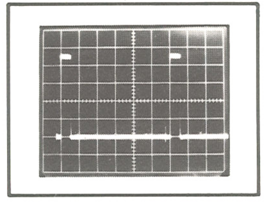
3-5 1V/DIV, 2ms/DIV



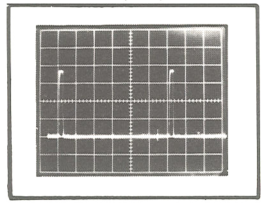
3-5 1V/DIV, 10μs/DIV



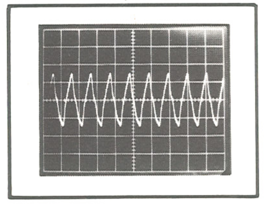
3-6 1V/DIV, 10μs/DIV



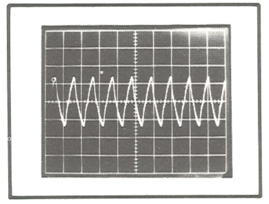
3-7 2V/DIV, 10μs/DIV



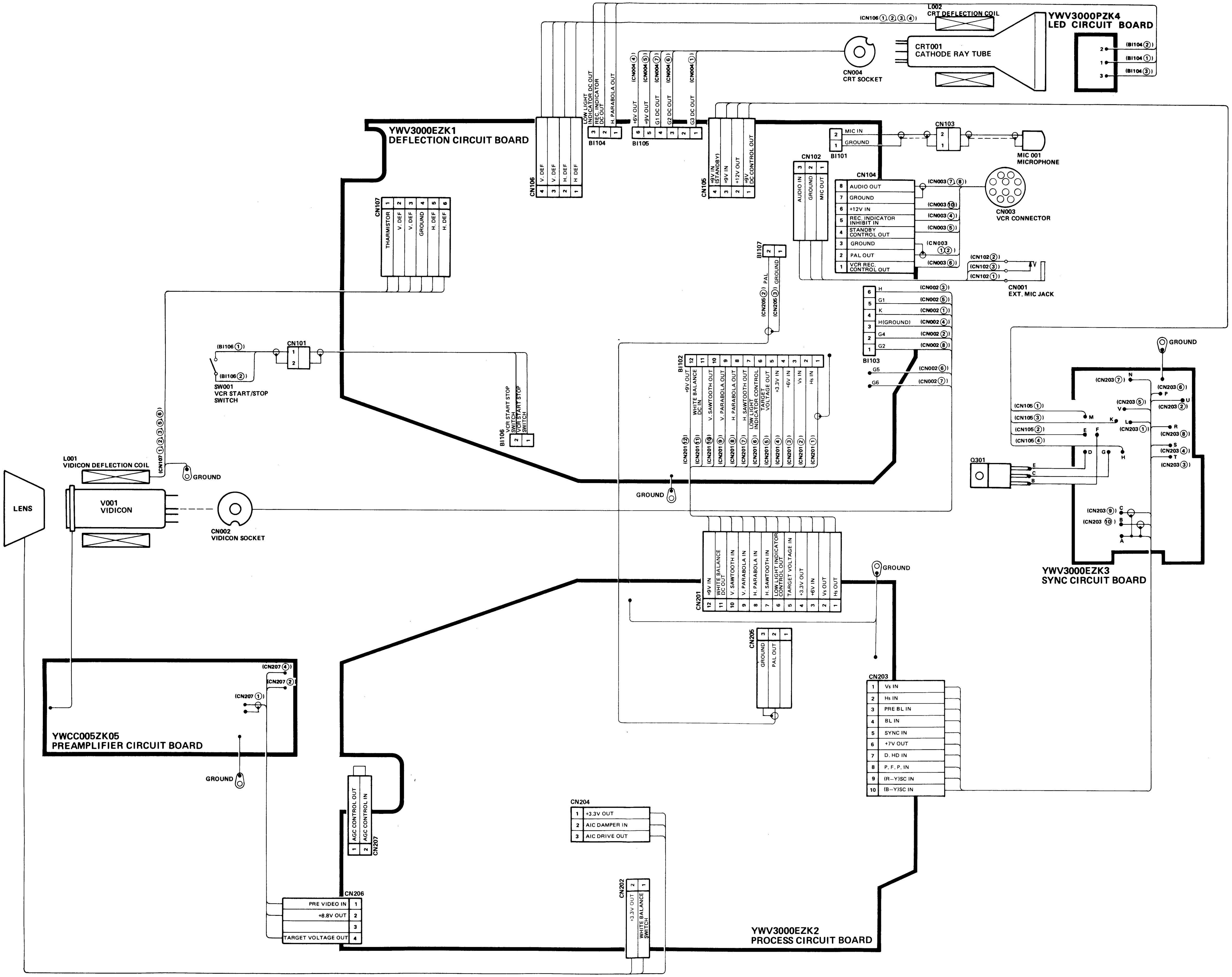
3-8 1V/DIV, 0.2μs/DIV



3-9 1V/DIV, 0.2μs/DIV



WIRING DIAGRAM


YWV3000PZK4
LED CIRCUIT BOARD
L002
CRT DEFLECTION COIL
CRT001
CATHODE RAY TUBE
CN004
CRT SOCKET
YWV3000EZK1
DEFLECTION CIRCUIT BOARD
CN106
V. DEF
H. DEF
BI104
LOW LIGHT INDICATOR DC OUT
REC. INDICATOR DC OUT
H. PARABOLA OUT
BI105
+6V OUT
+9V OUT
G1 DC OUT
G2 DC OUT
G3 DC OUT
CN105
+9V IN (STANDBY)
+9V IN
+12V OUT
+9V DC CONTROL OUT
CN102
AUDIO IN
GROUND
MIC OUT
BI101
MIC IN
GROUND
CN103
MIC 001
MICROPHONE
CN104
AUDIO OUT
GROUND
+12V IN
REC. INDICATOR INHIBIT IN
STANDBY CONTROL OUT
GROUND
PAL OUT
VCR REC. CONTROL OUT
CN003
VCR CONNECTOR
CN001
EXT. MIC JACK
CN107
THARMISTOR
V. DEF
GROUND
H. DEF
BI107
PAL
GROUND
BI103
H
G1
K
H(GROUND)
G4
G2
G5
G6
BI102
+9V OUT
WHITE BALANCE DC IN
V. SAWTOOTH OUT
V. PARABOLA OUT
H. PARABOLA OUT
H. SAWTOOTH OUT
LOW LIGHT INDICATOR CONTROL
TARGET VOLTAGE OUT
+3.3V OUT
+6V IN
Vs IN
Hs IN
CN101
SW001
VCR START/STOP SWITCH
BI106
VCR START STOP SWITCH
L001
VIDICON DEFLECTION COIL
GROUND
LENS
V001
VIDICON
CN002
VIDICON SOCKET
Q301
YWV3000EZK3
SYNC CIRCUIT BOARD
CN201
+9V IN
WHITE BALANCE DC OUT
V. SAWTOOTH IN
V. PARABOLA IN
H. PARABOLA IN
H. SAWTOOTH IN
LOW LIGHT INDICATOR CONTROL OUT
TARGET VOLTAGE IN
+3.3V OUT
+6V IN
Vs OUT
Hs OUT
CN205
GROUND
PAL OUT
CN203
Vs IN
Hs IN
PRE BL IN
BL IN
SYNC IN
+7V OUT
D. HD IN
P. F. P. IN
(R−Y)SC IN
(B−Y)SC IN
YWCC005ZK05
PREAMPLIFIER CIRCUIT BOARD
CN207
AGC CONTROL OUT
AGC CONTROL IN
CN204
+3.3V OUT
AIC DAMPER IN
AIC DRIVE OUT
CN206
PRE VIDEO IN
+8.8V OUT
TARGET VOLTAGE OUT
CN202
+3.3V OUT
WHITE BALANCE SWITCH
YWV3000EZK2
PROCESS CIRCUIT BOARD

ORDER NO. AVD-8103-544

Service Manual

Vol. 4

Replacement Parts List
Exploded View

Colour Video Cameras

WV-3000E/WV-3000N

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- L.E.D. Circuit Board (YWV3000PZK4) 6
- Preamplifier Circuit Board (YWCC005ZK05) .... 6~7
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Panasonic / National

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Vol. 4

Important Notice

REPLACEMENT PARTS LIST

1. Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
2. Components identified by * mark are new parts used from this model.

MODEL WV-3000E/3000N

MISCELLANEOUS

SYMBOL NO.	PART NO.	DESCRIPTION
V001	S4094P	Vidicon Tube
CRT001 ⚠	40CB4M	Cathode Ray Tube
C001	ECQE16682N66	Mettallized Polyester 0.0068μF1600V
L001	ELY-18A205B	Deflection Coil for Vidicon Tube
L002 ⚠	ELY 15V100A	Deflection Coil for CRT
MIC001	YWV2600EKR97	Mic Case Assembly
CN001	YWMOJ-B65	External Mic Jack
CN002	YWS8-612J-01	Vidicon Socket
CN003	YWCABLE3000E	Camera Cable and Cable connector
CN004	YWS7-560P-45	CRT Socket
CN101-PM	EMCL0207D52V	Connecting Wire Ass'y for CN101 and BI106
CN102-PF	EMCM0312C52V	3-Pin Plug Female
CN103-PF	EMCM0212B52	2-Pin Plug Female
CN104-PF	YWCABLE3000E	Connecting Wire Ass'y for CN104 and CN003
CN106-PF	ELY-15V100A	Connecting Wire Ass'y for CN106 and L002
CN107-PF	ELY-18A205B	Connecting Wire Ass'y for CN107 and L001
CN202-PF	EMCHUM0201W	2-Pin Outer Case of Connector
CN204-PF	EMCHUM0301W	3-Pin Outer Case of Connector
E001	EMLKNM02D	Contact Receptacle for CN202 and CN204
M001 ⚠	* YWV3000EKR3	Upper Cover
M002 ⚠	* YWCC500WB01	Eye Cap
M003 ⚠	* YWCC500FR03A	Eye Cap Holder
M004	* YWCC704LB01	Lens
M005 ⚠	* YWCC500FR04A	Lens Holder
M006	* YWCC500WM02A	Plate Spring
M007	* YWFAC17XAM3	Accessory Shoe
M008	* YWFAC17XWB1	Leaf Spring for Accessory Shoe
M009	* YWFAC17XFM2	Screw for Accessory Shoe
M010	* YWCC704AM03A	Nut Plate For Accessory Shoe

SYMBOL NO.	PART NO.	DESCRIPTION
M011	* YWCC500AM05	Fastening Bracket for Cover
M012 ⚠	* YWV3000EKR99	Right Side Cover Assembly
M013	* YWCC500HR03	Filter Knob
M014	* YWCC500WM03	Filter Knob Holder
M015	YWB-26E-2	Vidicon Socket Cover
M016 ⚠	* YWV3000EUR1 YWV3000NUR1	Main Label for WV-3000E Main Label for WV-3000N
M017 ⚠	* YWV3000EKR98 YWV3000NKR98	Left Side Cover Assembly for WV-3000E Left Side Cover Assembly for WV-3000N
M020	YWS-XEGRB07	X-Ray Label A for WV-3000E
M021	* YWCC500CM01B	Coil Chassis
M022	* YWCC500FM01	Lens Mounting
M023	* YWCC500FM02A	Coil Holder
M024	* YWCC500FM03A	Coil Guide
M025	* YWCC500WB99	Crystal Holder Assembly
M026	* YWCC500LB17	Insulator Paper for Vidican Socket Cover
M027	* YWCC500FM04	Screw for Crystal Holder (x2)
M028	* YWCC500HR01	Red Gain Knob
M029	* YWCC500HR02	Blue Gain Knob
M030	* YWCC500FR05	Serial Number Base
M034	* YWCC500AM18	Shield Plate B for Vidicon Socket
M036	* YWV2600EDM1 YWV2600NDM1	Logo Name Plate for WV-3000E Logo Name Plate for WV-3000N
M037	* YWCC500KR04	Rear Cover
M038	* YWV3000EUM1	Panel for CRT
M039	* YWCC500WM01	Spring for CRT
M040	* YWCC500AM01	Support Bracket for CRT
M042	YWV3804WB03	Rubber Neck for CRT
M043	* YWCC704AM04	Mounting Bracket for CRT
M045	* YWCC500AM04	Mounting Bracket for Printed Circuit Board
M052	* YWCC500AM12B	Shield Plate for Coil
M053	* YWFAC17XAM4	Shield Plate A for Vidicon Socket
M054	* YWCC500AM14A	Shield Plate for Deflection
M055 ⚠	* YWCC500LB11A	Insulator Paper for Deflection
M058	* YWCC500AM11	Shield Plate A for Preamp
M059	* YWCC500LB13	Insulator Washer (x5)
M070	* YW318224 YW318225	Zoom Lens Housing for WV-3000E Zoom Lens Housing for WV-3000N

SYMBOL NO.	PART NO.	DESCRIPTION
M071	*YW318131	Zoom Lever
M072	*YW318217	CC Filter
M073	*YW318116	Focus Band
M074	*YW318117	Zoom Band
M075	*YW614039A	Rubber Cap
M076	*YW318135	Lens Hood
M077	*YW618146-D	Lens Cap
M078	*YW318219	CC Filter Stopper Screw
M080	*YWV2600EWB1	Wind Screen

YWV3000EZK1
DEFLECTION CIRCUIT BOARD

SYMBOL NO.	PART NO.	DESCRIPTION
PCB001	*YWV3000EZK1	Printed Circuit Board Assembly
IC101	YHSNJM4558D or AN6552	Integrated Circuit
IC102	NJM4560D	Integrated Circuit
IC103	AN6055	Integrated Circuit
IC104	NJM4556D	Integrated Circuit
IC105	NJM4556DT	Integrated Circuit
IC106	YHSNJM4558D or AN6552	Integrated Circuit
IC107	AN374P	Integrated Circuit
IC108	AN5750	Integrated Circuit
IC109	AN6914 or NJM2903D	Integrated Circuit
Q101,102	2SC2377-CD or 2SC1047-CD	Transistor
Q103,104	2SA749A	
Q105	2SC1980-RST or 2SD890-QRS	Transistor
Q106	2SD636-QRS	Transistor
Q107	2SB641-QRS or 2SA564-QRS	Transistor
Q108	2SD636-QRS	Transistor
Q109	2SB641-QRS or 2SA564-QRS	Transistor
Q110	2SD638-QR	Transistor
Q111	2SD959-PQ	Transistor
Q112	2SD638-QRS or 2SC1317-QRS	Transistor
Q113	2SB641-QRS or 2SA564-QRS	Transistor
Q114	2SD636-QRS	Transistor
Q115	2SC1473NCQRS or 2SC1473NCPQR	Transistor
Q116	2SD661-TU or 2SC1327-TU	Transistor
Q117	2SB641-QRS or 2SA564-QRS	Transistor
Q118	2SD636-QRS	Transistor
Q119	2SD866-PQ	Transistor
Q120	2SC2377-CD or 2SC1047-CD	Transistor
Q121	2SA838-CD or 2SA838-BCD	Transistor
Q122	2SA749A	Transistor
Q123	2SD638-QR	Transistor
Q124	2SC1980-RST or 2SD890-QRS	Transistor
D101~105	MA165	Diode

SYMBOL NO.	PART NO.	DESCRIPTION		
D106	YUDRU2M	Diode		
D107,108	MA165	Diode		
D110	MA165	Diode		
R101	ERD10TJ123	Carbon	12KΩ	⅛W
R102	ERD10TJ332	Carbon	3.3KΩ	⅛W
R103	ERD10TJ682	Carbon	6.8KΩ	⅛W
R104	ERD10TJ562	Carbon	5.6KΩ	⅛W
R105	ERD10TJ123	Carbon	12KΩ	⅛W
R106	ERD10TJ303	Carbon	30KΩ	⅛W
R107	ERD10TJ152	Carbon	1.5KΩ	⅛W
R108,109	ERD10TJ512	Carbon	5.1KΩ	⅛W
R110	ERD10TJ682	Carbon	6.8KΩ	⅛W
R111	ERD10TJ203	Carbon	20KΩ	⅛W
R112	ERD10TJ682	Carbon	6.8KΩ	⅛W
R113,114	ERD10TJ331	Carbon	330Ω	⅛W
R115	ERD10TJ912	Carbon	9.1KΩ	⅛W
R116	ERD10TJ183	Carbon	18KΩ	⅛W
R117	ERD10TJ221	Carbon	220Ω	⅛W
R118	ERD10TJ223	Carbon	22KΩ	⅛W
R119	ERO25CKF1003	Metal	100KΩ	¼W
R120	ERD10TJ393	Carbon	39KΩ	⅛W
R121	ERD10TJ561	Carbon	560Ω	⅛W
R122	ERO25CKF1102	Metal	11KΩ	¼W
R123	ERO25CKF5601	Meatl	5.6KΩ	¼W
R124	ERD10TJ2R2	Carbon	2.2Ω	⅛W
R125	ERD10TJ152	Carbon	1.5KΩ	⅛W
R126	ERD10TJ223	Carbon	22KΩ	⅛W
R127	ERD10TJ181	Carbon	180Ω	⅛W
R128	ERO25CKF62RO	Metal	62Ω	¼W
R129	ERD10TJ223	Carbon	22KΩ	⅛W
R130	ERSB39J332	Thermal	3.3KΩ	
R131	ERD10TJ102	Carbon	1KΩ	⅛W
R132	ERD10TJ274	Carbon	270KΩ	⅛W
R133	ERD10TJ910	Carbon	91Ω	⅛W
R134	ERD25FJ103	Carbon	10KΩ	¼W
R135	ERD10TJ512	Carbon	5.1KΩ	⅛W
R136	ERD10TJ561	Carbon	560Ω	⅛W
R137	ERD10TJ432	Carbon	4.3KΩ	⅛W
R138	ERD10TJ332	Carbon	3.3KΩ	⅛W
R139	ERO25CKF3003	Metal	300KΩ	¼W
R140	ERD10TJ391	Carbon	390Ω	⅛W
R141	ERO25CKF33R0	Metal	33Ω	¼W
R142	ERD10TJ222	Carbon	2.2KΩ	⅛W
R143	ERD10TJ471	Carbon	470Ω	⅛W
R148	ERD25FJ563	Carbon	56KΩ	¼W
R149,150	ERD10TJ224	Carbon	220KΩ	⅛W
R151	ERD10TJ133	Carbon	13KΩ	⅛W
R152	ERD10TJ753	Carbon	75KΩ	⅛W
R154	ERD10TJ823	Carbon	82KΩ	⅛W
R155	ERD10TJ472	Carbon	4.7KΩ	⅛W
R156	ERD10TJ152	Carbon	1.5KΩ	⅛W
R157	ERD10TJ683	Carbon	68KΩ	⅛W
R158	ERD10TJ2R7	Carbon	2.7Ω	⅛W

SYMBOL NO.	PART NO.	DESCRIPTION		
R159	ERD10TJ562	Carbon	5.6KΩ	⅛W
R160	ERD10TJ563	Carbon	56KΩ	⅛W
R161	ERD10TJ152	Carbon	1.5KΩ	⅛W
R162	ERD10TJ332	Carbon	3.3KΩ	⅛W
R163	ERD10TJ472	Carbon	4.7KΩ	⅛W
R164	ERD10TJ241	Carbon	240Ω	⅛W
R165	ERD10TJ272	Carbon	2.7KΩ	⅛W
R166	ERD10TJ821	Carbon	820Ω	⅛W
R167	ERD10TJ242	Carbon	2.4KΩ	⅛W
R168	ERD10TJ222	Carbon	2.2KΩ	⅛W
R169	ERD10TJ223	Carbon	22KΩ	⅛W
R170	ERD10TJ102	Carbon	1KΩ	⅛W
R171	ERD10TJ102	Carbon	1KΩ	⅛W
R172	ERD10TJ333	Carbon	33KΩ	⅛W
R173	ERD10TJ391	Carbon	390Ω	⅛W
R174	ERD10TJ334	Carbon	330KΩ	⅛W
R175	ERD10TJ101	Carbon	100Ω	⅛W
R176	ERD25FJ395	Carbon	3.9MΩ	¼W
R177	ERD10TJ103	Carbon	10KΩ	⅛W
R178	ERD10TJ334	Carbon	330KΩ	⅛W
R179	ERD25FJ225	Carbon	2.2MΩ	¼W
R180	ERD10TJ224	Carbon	220KΩ	⅛W
R181	ERD25FJ564	Carbon	560KΩ	¼W
R182	ERD10TJ101	Carbon	100Ω	⅛W
R183	ERD10TJ362	Carbon	3.6KΩ	⅛W
R184	ERD10TJ133	Carbon	13KΩ	⅛W
R185	ERD10TJ2R2	Carbon	2.2Ω	⅛W
R187	ERD10TJ202	Carbon	2KΩ	⅛W
R189	ERD10TJ152	Carbon	1.5KΩ	⅛W
R190	ERD10TJ221	Carbon	220Ω	⅛W
R191	ERD10TJ101	Carbon	100Ω	⅛W
R192	ERD10TJ470	Carbon	47Ω	⅛W
R193	ERD10TJ151	Carbon	150Ω	⅛W
R194	ERD10TJ621	Carbon	620Ω	⅛W
R195	ERD10TJ821	Carbon	820Ω	⅛W
BR101	EXB-H89119JB	Block Resistor		
BR102	EXB-H86120JB	Block Resistor		
BR103	EXB-H85149JB	Block Resistor		
BR104	EXB-H87121JB	Block Resistor		
BR105	EXB-H85134JB	Block Resistor		
BR106	EXB-H85131JB	Block Resistor		
BR107	YWA100	Block Resistor		
BR108	EXBH84167JB	Block Resistor		
VR101~106	YWH0651A10K	Variable Resistor	10KΩ	
VR107	YWH0651A3R3K	Variable Resistor	3.3KΩ	
VR108	YWH0621A22K	Variable Resistor	22KΩ	
VR109	YWH0621A100	Variable Resistor	100Ω	
VR110	YWH0651A10K	Variable Resistor	10KΩ	
VR111	YWH0651A22K	Variable Resistor	22KΩ	
VR112	YWH0621A100K	Variable Resistor	100KΩ	
VR113	YWH0651A3R3K	Variable Resistor	3.3KΩ	
VR114	YWH0651A1M	Variable Resistor	1MΩ	
VR115	YWH0621A100	Variable Resistor	100Ω	
VR116	YWH0651A2R2K	Variable Resistor	2.2KΩ	

SYMBOL NO.	PART NO.	DESCRIPTION		
VR117	YWH0621A100	Variable Resistor	100Ω	
VR118	YWH0651A330K	Variable Resistor	330KΩ	
VR119,120	YW6M2S2MM	Variable Resistor	2MΩ	
VR121	YWH0651A330K	Variable Resistor	330KΩ	
C101	ECEA1HK010	Electrolytic	1μF	50V
C102	ECEA1AS221	Electrolytic	220μF	10V
C103	ECEA0JS470	Electrolytic	47μF	6.3V
C104	ECEA1HKR22	Electrolytic	0.22μF	50V
C105	ECKF1H151KB	Ceramic	150pF	50V
C106	ECEA1HKR22	Electrolytic	0.22μF	50V
C107	ECQV05103JZ	TF Capacitor	0.01μF	50V
C108	ECQV05563N	TF Capacitor	0.056μF	50V
C109	ECQP1122JZ	Polypropylene	0.0012μF	100V
C110,111	ECEA1CS100	Electrolytic	10μF	16V
C113	ECEA2AS3R3	Electrolytic	3.3μF	100V
C114	ECEA0JS221	Electrolytic	220μF	6.3V
C115	ECQE2473KZ	Metal	0.047μF	250V
C116	ECEA1ES101	Electrolytic	100μF	25V
C117	ECSF10E10	Tantalum	10μF	10V
C118	ECEA1AS221	Electrolytic	220μF	10V
C119	ECEA1EN4R7S	Electrolytic	4.7μF	25V
C120	ECSF10E4R7K	Tantalum	4.7μF	10V
C121	ECQM1H562KZ	Polyester	0.0056μF	50V
C122	ECQV05104JZ	TF Capacitor	0.1μF	50V
C123	ECQV05333JZ	TF Capacitor	0.033μF	50V
C124	ECKF1H681KB	Ceramic	680pF	50V
C125	ECEA1CS100	Electrolytic	10μF	16V
C126	ECEA0JS470	Electrolytic	47μF	6.3V
C127	ECEA1CK100	Electrolytic	10μF	16V
C129	ECEA0JS101	Electrolytic	100μF	6.3V
C130	ECEA1AS470	Electrolytic	47μF	10V
C131,132	ECSF6E68Z	Tantalum	68μF	6.3V
C133	ECQP1301JZ	Polypropylene	300pF	100V
C134	ECQP1391JZ	Polypropylene	390pF	100V
C135	ECCF1H330K	Ceramic	33pF	50V
C136	ECQV05224JZ	TF Capacitor	0.22μF	50V
C137	ECEA1CK100	Electrolytic	10μF	16V
C138	ECQK1224JG	Plastic Capacitor	0.22μF	100V
C139	ECKF1H102KB	Ceramic	1000pF	50V
C140	ECEA1AS470	Electrolytic	47μF	10V
C141	ECEA0JSS330	Electrolytic	33μF	6.3V
C142	ECEA1HK010	Electrolytic	1μF	50V
C143	ECKF1H102KB	Ceramic	1000pF	50V
C144	ECEA1CK100	Electrolytic	10μF	16V
C145	ECQV05224JZ	TF Capacitor	0.22μF	50V
C146	ECEA1EN4R7S	Electrolytic	4.7μF	25V
C147	ECQV05103JZ	TF Capacitor	0.01μF	50V
C148	ECEA1HKR22	Electrolytic	0.22μF	50V
C150,151	ECEA1CK100	Electrolytic	10μF	16V
C152	ECQV05103JZ	TF Capacitor	0.01μF	50V
C153	ECEA0JS471	Electrolytic	470μF	6.3V
C154	ECQV05273JZ	TF Capacitor	0.027μF	50V

SYMBOL NO.	PART NO.	DESCRIPTION		
C155	ECEA1CK100	Electrolytic	10µF	16V
C156	ECQV05183JZ	TF Capacitor	0.018µF	50V
C157	ECQV05153JZ	TF Capacitor	0.015µF	50V
C158	ECQV05273JZ	TF Capacitor	0.027µF	50V
C159	ECQV05103JZ	TF Capacitor	0.01µF	50V
C160	ECEA0JS470	Electrolytic	47µF	6.3V
C161	ECEA1AS101	Electrolytic	100µF	10V
C162	ECQP1103JZ	Polypropylene	0.01µF	100V
C163	ECEA1AS470	Electrolytic	47µF	10V
C164	ECEA1ASS331	Electrolytic	330µF	10V
C165	ECEA1AS470	Electrolytic	47µF	10V
C166,167	ECQE4103KZ	Metal	0.01µF	400V
C168	ECQE10103KV	Metal	0.01µF	1000V
C169	ECEA2AS4R7	Electrolytic	4.7µF	100V
C170	ECCF1H101J	Ceramic	100pF	50V
C171	ECEA2ASR47	Electrolytic	0.47µF	100V
C172	ECQV05103JZ	TF Capacitor	0.01µF	50V
C173	ECEA2AS010	Electrolytic	1µF	100V
C174	ECEA0JS101	Electrolytic	100µF	6.3V
C175	ECQV05823N	TF Capacitor	0.082µF	50V
C176	ECSF6E6R8	Tantalum	6.8µF	6.3V
C180	ECEA1EK4R7	Electrolytic	4.7µF	25V
L101	ELQ8R2D016M	Inductor	8.2µH	
L102	YWL10103JZ	Inductor	10mH	
L103	ELQ333D008J	Inductor	33mH	
L104	ELH-5L62	Linearity Coil		
L105	ELQ391D028	Inductor	390µH	
CL101	ZB-6D728	Trap	4.43mH	
T101	YWHDR1VETFR	Drive Transformer		
T102	YWHIGHPACK4	Fly-Back Transformer		
F101	YWICPN50	Fuse	2A	
CN102-JM	EMCS0352M	3-Pin Jack Male		
CN103-PM	EMCL0213B52V	Connecting Wire Ass'y for CN103 and BI101		
CN104-JM	EMCS0852M	8-Pin Jack Male		
CN105-JM, 106-JM	EMCS0452M	4-Pin Jack Male		
CN107-JM	EMCS0652M	6-Pin Jack Male		
BI101	EMCL0213B52V	Connecting Wire Ass'y for BI101 and CN103		
BI102	EMCM1210B60V	Connecting Wire Ass'y for BI102 and CN201		
BI103	EMCL0613D62W	6-Pin Connecting Wire Ass'y for BI103 and CN002		
BI104	EMCL0309D62	Connecting Wire Ass'y for BI104 and L E D Circuit Board		
BI105	EMCL0608D62W	Connecting Wire Ass'y for BI105 and CN004		
BI106	EMCL0207D52V	Connecting Wire Ass'y for BI106 and CN101		
BI107	EMCM0315B52V	Connecting Wire Ass'y for BI107 and CN205		
M019	*YWCC500FR11	Stud A		
M047	*YWCC500FR06A	Support Bracket		
M069	YW-G-UR02A	X-Ray B Label for WV-3000E		

SYMBOL NO.	PART NO.	DESCRIPTION		
YWV3000EZK2 PROCESS CIRCUIT BOARD				
PCB002	*YWV3000EZK2	Printed Circuit Board Assembly		
IC201	AN6015	Integrated Circuit		
IC202	AN6012	Integrated Circuit		
IC203	AN6022	Integrated Circuit		
IC204	AN6031	Integrated Circuit		
IC205	AN6045	Integrated Circuit		
IC206	AN614	Integrated Circuit		
IC207	HD74LS02A	Integrated Circuit		
IC208	NJM4556D	Integrated Circuit		
IC209	YHSNJM4558D or AN6552	Integrated Circuit		
IC210	EHMK220L20S	Integrated Circuit		
IC211	EHMK727A98S	Integrated Circuit		
IC212	EHMK111A97	Integrated Circuit		
Q201	2SB793A-RST	Transistor		
Q202	2SC2377-CD or 2SC1047	Transistor		
Q203,204	2SD636-QRS or 2SC828-QRS	Transistor		
Q205,206	2SC2377-CD or 2SC1047-CD	Transistor		
Q207~210	2SD636-QRS or 2SC828-QRS	Transistor		
Q211	2SC2377-CD or 2SC1047-CD	Transistor		
Q212	2SD636-QRS or 2SC828-QRS	Transistor		
Q213	2SC2377-CD or 2SC1047-CD	Transistor		
Q214	2SA838-CD	Transistor		
Q215,216	2SC2377-CD or 2SC1047-CD	Transistor		
D201	MA165	Diode		
D202	MA26W	Diode		
D203,204	MA165	Diode		
D206	MA165	Diode		
R201	ERD10TJ331	Carbon	330Ω	⅛W
R202	ERD10TJ154	Carbon	150KΩ	⅛W
R203	ERD10TJ224	Carbon	220KΩ	⅛W
R204	ERD10TJ561	Carbon	560Ω	⅛W
R205	ERD10TJ103	Carbon	10KΩ	⅛W
R206	ERD10TJ272	Carbon	2.7KΩ	⅛W
R207	ERD10TJ471	Carbon	470Ω	⅛W
R208	ERD10TJ102	Carbon	1KΩ	⅛W
R209	ERD10TJ393	Carbon	39KΩ	⅛W
R210	ERD10TJ752	Carbon	7.5KΩ	⅛W
R211	ERSB39J102	Thermal	1KΩ	
R212	YWLF14F1001	Metal	1KΩ	¼W
R213	ERD10TJ562	Carbon	5.6KΩ	⅛W
R214	YWLF14F1001	Metal	1KΩ	¼W
R215	ERD10TJ752	Carbon	7.5KΩ	⅛W
R216	ERD10TJ183	Carbon	18KΩ	⅛W
R217	ERD10TJ103	Carbon	10KΩ	⅛W
R218	ERD10TJ102	Carbon	1KΩ	⅛W
R219	ERD10TJ821	Carbon	820Ω	⅛W
R220	ERD10TJ331	Carbon	330Ω	⅛W
R221	ERD10TJ822	Carbon	8.2KΩ	⅛W
R222	ERD10TJ152	Carbon	1.5KΩ	⅛W
R223	ERD10TJ331	Carbon	330Ω	⅛W
R224	YWLF14F1001	Metal	1KΩ	¼W
R225	ERD10TJ472	Carbon	4.7KΩ	⅛W
R226	ERD25FJ561	Carbon	560Ω	¼W

SYMBOL NO.	PART NO.	DESCRIPTION		
R227	ERD10TJ562	Carbon	5.6KΩ	⅛W
R228	ERD10TJ223	Carbon	22KΩ	⅛W
R229,230	ERD10TJ103	Carbon	10K	⅛W
R231,232	ERD10TJ102	Carbon	1KΩ	⅛W
R233	ERD25FJ103	Carbon	10KΩ	¼W
R234,235	ERD10TJ391	Carbon	390Ω	⅛W
R236	ERD10TJ562	Carbon	5.6KΩ	⅛W
R237,238	ERD10TJ104	Carbon	100KΩ	⅛W
R240	ERD10TJ183	Carbon	18KΩ	⅛W
R241	ERD25FJ332	Carbon	3.3KΩ	¼W
R242	ERD10TJ102	Carbon	1KΩ	⅛W
R243	ERSB39J102	Thermal	1KΩ	
R244	ERD10TJ102	Carbon	1KΩ	⅛W
R246	ERD10TJ102	Carbon	1KΩ	⅛W
R248	ERD25FJ103	Carbon	10KΩ	¼W
R249	ERD10TJ561	Carbon	560Ω	⅛W
R250	ERD10TJ473	Carbon	47KΩ	⅛W
R251	ERTD2FHL153S	Thermister	15KΩ	2W
R252	ERSB39J152	Thermal	1.5KΩ	
R2001	ERD10TJ820	Carbon	82Ω	⅛W
R2002	ERD10TJ181	Carbon	180Ω	⅛W
BR201	EXBH85146JB	Block Resistor		
BR202	EXBH85144JB	Block Resistor		
BR203	EXBH85147SB	Block Resistor		
BR204	EXBH83177JB	Block Resistor		
BR205	EXBH84155JB	Block Resistor		
BR207	EXBH84156JB	Block Resistor		
BR208	EXBH85145JB	Block Resistor		
BR209	EXBH86126JB	Block Resistor		
BR210	EXBH88117KB	Block Resistor		
BR211	EXBH86118KB	Block Resistor		
BR212	EXBH86126JB	Block Resistor		
BR213	EXBH86128JB	Block Resistor		
BR214	EXBH83141JB	Block Resistor		
BR215	EXBH83189JB	Block Resistor		
BR216	EXBH86198JB	Block Resistor		
BR217	EXBH84130SB	Block Resistor		
BR219	EXBH86127JB	Block Resistor		
BR220	EXBH88171JB	Block Resistor		
BR221	EXBH85199JB	Block Resistor		
BR222	EXBH84174JB	Block Resistor		
BR223	EXBH84129JB	Block Resistor		
VR201	YWH0651A470	Variable Resistor	470Ω	
VR202	YWH0651A10K	Variable Resistor	10KΩ	
VR203	YWH0651A3R3K	Variable Resistor	3.3KΩ	
VR204	YWH0651A1K	Variable Resistor	1KΩ	
VR205	YWH0651A3R3K	Variable Resistor	3.3KΩ	
VR206	YWH0651A2R2K	Variable Resistor	2.2KΩ	
VR207	YWH0651A47K	Variable Resistor	47KΩ	
VR208~211	YWH0651A100K	Variable Resistor	100KΩ	
VR212,213	YWH0651A22K	Variable Resistor	22KΩ	
VR214	YWH0651A10K	Variable Resistor	10KΩ	
VR215	YWH0651A47K	Variable Resistor	47KΩ	

SYMBOL NO.	PART NO.	DESCRIPTION		
VR216	YWH0651A10K	Variable Resistor	10KΩ	
VR217,218	YWH0651A100K	Variable Resistor	100KΩ	
VR219,220	YWH0651A47K	Variable Resistor	47KΩ	
VR221,222	VN20E55330KB	Variable Resistor	30KΩ	
VR223~226	YWH0651A100K	Variable Resistor	100KΩ	
VR227,228	YWH0651A22K	Variable Resistor	22KΩ	
VR229	YWH0651A10K	Variable Resistor	10KΩ	
VR230	YWH0651A4R7K	Variable Resistor	4.7KΩ	
C201	ECEA0JSS470	Electrolytic	47μF	6.3V
C202	ECEA0JS470	Electrolytic	47μF	6.3V
C203	ECEA1AN220S	Electrolytic	22μF	10V
C204	ECQV05393KZ	TF Capacitor	0.039μF	50V
C205	ECEA1AS330	Electrolytic	33μF	10V
C206	ECEA1ASS330	Electrolytic	33μF	10V
C207	ECQV05393JZ	TF Capacitor	0.039μF	50V
C208	ECSF6E47	Tantalum	47μF	6.3V
C209	ECEA1HK010	Electrolytic	1μF	50V
C210	ECEA1AN220S	Electrolytic	22μF	10V
C211	ECKF1H221KB	Ceramic	220pF	50V
C212	ECSF6E47	Tantalum	47μF	6.3V
C214	ECEA1CN100S	Electrolytic	10μF	16V
C215	ECQV05393JZ	TF Capacitor	0.039μF	50V
C216	ECEA1CK100	Electrolytic	10μF	16V
C217	ECEA0JK470	Electrolytic	47μF	6.3V
C218	ECEA1CK100	Electrolytic	10μF	16V
C219	ECEA0JSS471	Electrolytic	470μF	6.3V
C220,221	ECEA1AS330	Electrolytic	33μF	10V
C222	ECKF1H222MD	Ceramic	2200pF	50V
C223	ECKF1H221KB	Ceramic	220pF	50V
C224,225	ECEA0JK220	Electrolytic	22μF	6.3V
C226	ECEA1CK100	Electrolytic	10μF	16V
C227	ECEA1AS330	Electrolytic	33μF	10V
C228,229	ECKF1H102KB	Ceramic	1000pF	50V
C230,231	ECKF1H222MD	Ceramic	2200pF	50V
C232	ECCF1H020C	Ceramic	2pF	50V
C233	ECEA1CK100	Electrolytic	10μF	16V
C234	ECSF10E47	Tantalum	47μF	10V
C235	ECEA0JSS470	Electrolytic	47μF	6.3V
C236~238	ECEA1HK0R1	Electrolytic	0.1μF	50V
C239	ECEA1AS330	Electrolytic	33μF	10V
C240,241	ECKF1H561KB	Ceramic	560pF	50V
C242~245	ECKF1H222MD	Ceramic	2200pF	50V
C246	ECEA0JS470	Electrolytic	47μF	6.3V
C247	ECKF1H222MD	Ceramic	2200pF	50V
C248	ECCF1H020C	Ceramic	2pF	50V
C249	ECEA1CK100	Electrolytic	10μF	16V
C250,251	ECEA1AK330	Electrolytic	33μF	10V
C252	ECEA0JK470	Electrolytic	47μF	6.3V
C253	ECKF1H121KB	Ceramic	120pF	50V
C254	ECCF1H330J	Ceramic	33pF	50V
C255	ECKF1H121KB	Ceramic	120pF	50V
C257	ECCF1H470JC	Ceramic	47pF	50V
C259	ECCF1H470JC	Ceramic	47pF	50V
C260	ECSF10E4R7	Tantalum	4.7μF	10V
C261,262	ECKF1H222MD	Ceramic	2200pF	50V
C263	ECCF1H100J	Ceramic	10pF	50V

SYM-BOL NO.	PART NO.	DESCRIPTION
C264	ECSF6E47	Tantalum 47μF 6.3V
C267	ECQP1621JZ	Polypropylene 620pF 100V
VC201,202	ECV1ZW40X74B	Trimmer Capacitor 40pH
L201	ELQ8R2D016AM	Inductor 8.2μH
L202	ELQ150D016Z	Inductor 15μH
L203~205	YWEL06SI150J	Inductor 15μH
L206	ELQ181D014J	Inductor 180μH
L207	YWEL06SI8R2M	Inductor 8.2μH
L208	ELEH8R2K	Inductor 8.2μH
L209	YWEL06SI8R2M	Inductor 8.2μH
L210	ELQ181D014J	Inductor 180μH
L211	ELQ2R2D016M	Inductor 2.2μH
L212	ELQ220D014Z	Inductor 22μH
L213	YWEL06SI120J	Inductor 12μH
L214	ELQ8R2D016AM	Inductor 8.2μH
L215	YWEL06SI101J	Inductor 100μH
L216	YWEL06SI560J	Inductor 56μH
LC201	YWLCF033	Block Filter
LC202	YWLCF080	Block Filter
LC203	YWLCF050	Block Filter
LC204	YWLCF096	Block Filter
LC205	YWLCF215	Block Filter
LC206	YWLCF210	Block Filter
LC207,208	YWLCF032	Block Filter
LC209	YWLCF095	Block Filter
LC210	YWLCF034	Block Filter
DL201	EFDRN645B81A	Delay Line
DL202	EFDEN645A13A	Delay Line
Z201,202	EFCA3R58MB3	Ceramic Trap
Z203	EFCA4R45MB3	Ceramic Trap
Z204	EFCA3R58MB3	Ceramic Trap
T201	ELT7Q701A	Intermediater Frequency Transormer
CN201-JM	EMCS1250M	12-Pin Jack Male
CN202-JM	EMCS0250M	2-Pin Jack Male
CN203-JM	EMCS1050M	10-Pin Jack Male from Sync.
CN204-JM 205-JM	EMCS0350M	3-Pin Jack Male
CN206-JM	EMCS0450M	4-Pin Jack Male from Preamp.
CN207-JM	EMCS0250M	2-Pin Jack Male
CN201-PF	EMCM1210B62	Connecting Wire Ass'y for CN201 and BI102
CN205-PF	EMCM0310B62	Connecting Wire Ass'y for CN205 and BI107
CN207-PF	EMCM0201S	2-Pin Plug Female for AGC Check
M041	YWCC500AM02	Block Filter Shield Plate
M044	YWCC500FR12	Stud B
M049	YWCC500AM03	Mounting Bracket for Variable Resistor

YWV3000EZK3
SYNC CIRCUIT BOARD

SYM-BOL NO.	PART NO.	DESCRIPTION
PCB003	*YWV3000EZK3	Printed Circuit Board Assembly
IC301	YWHD44007A	Integrated Circuit
Q301	2SA1061-P	Transistor
D301,302	YUD1S2688	Diode
D303	LN217RP	Light Emitting Diode
X301	YWNC18C17R7M	Crystal
R301	ERD25FJ222	Carbon 2.2KΩ ¼W
R302	ERD25FJ105	Carbon 1MΩ ¼W
R303	ERD25FJ102	Carbon 1KΩ ¼W
R304	YWLF14F1602	Metal 16KΩ ¼W
BR301	EXBH85175JB	Block Resistor
BR302	EXBH83176JB	Block Resistor
C301	ECQV05103JZ	TF Capacitor 0.01μF 50V
C302	ECCF1H151JC	Ceramic 150pF 50V
C303	ECQV05103JZ	TF Capacitor 0.01μF 50V
C304	ECEA1HN010S	Electrolytic 1μF 50V
C305	ECKF1H101KB	Ceramic 100pF 50V
C306	ECKF1H102KB	Ceramic 1000pF 50V
C307	ECEA1ASS221	Electrolytic 220μF 10V
C308	ECCF1H180JC	Ceramic 18pF 50V
C309	ECCF1H080JC	Ceramic 8pF 50V
VC301	ECV1NW20X74B	Trimmer Capacitor 20pH
T301	ELL7E012D	Oscillator Coil
SW301	YWSSB0226LP	Standby Switch
CN105-PF	EMCM0418D65	4-Pin Plug Female
CN203-PF	EMCM1014B63Y	10-Pin Plug Female
M031	YWCC500UR04	Standby Indicator Plate
M032	*YWFAC17XAM6	Rear Shield Plate B
M033	*YWFAC17LB1	Rear Insulator Paper
M060	*YWFAC17XAM5	Rear Shield Plate A

YWV3000PZK4
L.E.D CIRCUIT BOARD

SYM-BOL NO.	PART NO.	DESCRIPTION
PCB004	*YWV3000PZK4	Printed Circuit Board Assembly
D401	LN23SRP-D	L.E.D (Red)
D402	LN43SYP	L.E.D (Orange)
M048	*YWCC500FR02	L.E.D Holder

YWCC005ZK05
PREAMPLIFIER CIRCUIT BOARD

SYM-BOL NO.	PART NO.	DESCRIPTION
PCB005	*YWCC005ZK05	Printed Circuit Board Assembly
IC501	EHMK720A57	Integrated Circuit
Q501	2SK218-QR	Transistor
D501	MA26	
R501	ERD25FJ565	Carbon 5.6MΩ ¼W
R502	ERD10TJ104	Carbon 100KΩ ⅛W
R503	ER050CKG2704	Metal 2.7MΩ ½W

SYM-BOL NO.	PART NO.	DESCRIPTION
R504	ERD10TJ181	Carbon 180Ω ⅛W
R505	ERD10TJ683	Carbon 68KΩ ⅛W
C501	ECQE1333JN	Metal 0.033μF 100V
C502	ECEA1HKR22	Electrolytic 0.22μF 50V
C503	ECSF6E47Z	Tantalum 47μF 6.3V
C505	ECSF6E47Z	Tantalum 47μF 6.3V
C506	ECSF10E47Z	Tantalum 47μF 10V
C507	ECCF1H060CC	Ceramic 6pF 50V
C508	ECSF10E4R7	Tantalum 4.7μF 10V
C509	ECSF10E47Z	Tantalum 47μF 10V
C510	ECCF1H020CC	Ceramic 2pF 50V
C511	ECCF1H220JC	Ceramic 22pF 50V
C512	ECSF6E47Z	Tantalum 47μF 6.3V
VC501	ECV1NW40X74B	Trimmer Capacitor
L501	YWPREL321	Inductor 320μH
L502	YWEL06SI8R2M	Inductor 8.2μH
CN206-PF	EMCM0417B52X	4-Pin Plug Female

YWCC500XK05
HANDLE GRIP ASSEMBLY

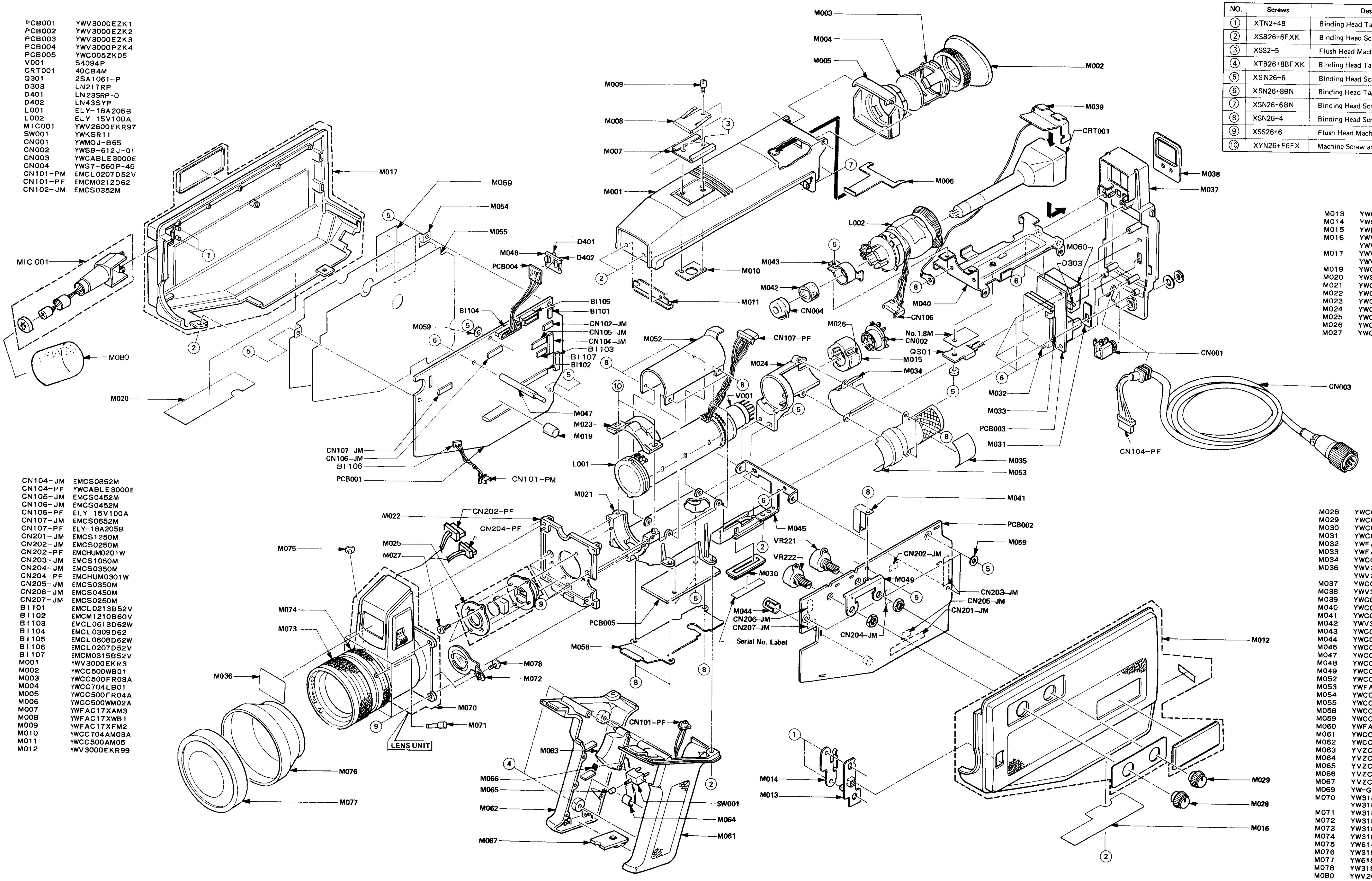
SYM-BOL NO.	PART NO.	DESCRIPTION
SW001	YWKSR11	VCR Start/Stop Switch for Remote Control
CN101-PF	EMCM0212D62	2-Pin Plug Female
M061 ⚠	*YWCC500KR05	Handle Grip Cover A
M062 ⚠	*YWCC500KR06	Handle Grip Cover B
M063	YVZC602HR04	VCR Start/Stop Switch Knob
M064	YVZC602WM01	Spting Palte for Start/Stop Switch
M065	YVZC602WB01A	Damper A
M066	YVZC602WB02	Damper B
M067	YVZC612FM01	Tripod Base

ACCESSORY PARTS/ PACKAGING PARTS

SYM-BOL NO.	PART NO.	DESCRIPTION
M081 ⚠ *	YWV3000ERB1	Instruction Book for WV-3000E
	YWV3000NRB1	Instruction Book for WV-3000N
M082	XZB26X40C05	Polyethylene Bag for Instruction Book
M083	XZB30X50A03	Polyethylene Bag for Camera Unit
M084	XZB20X35A02	Polyethylene Bag for Cable
M086 *	YWV3000EPB1	Packaging Case for WV-3000E
	YWV3000NPB1	Packaging Case for WV3000N

EXPLODED VIEW

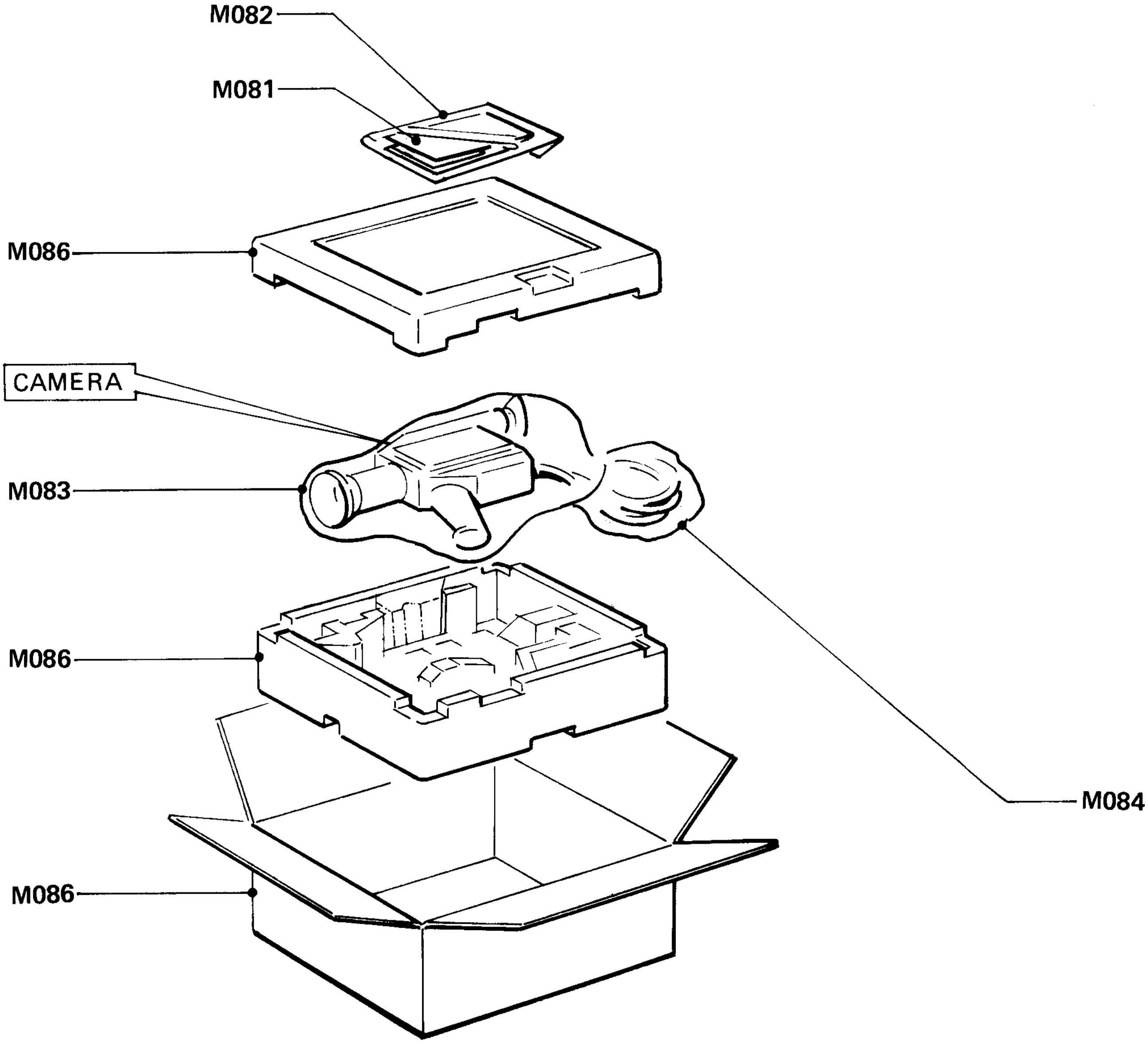
PCB001	YWV3000EZK1
PCB002	YWV3000EZK2
PCB003	YWV3000EZK3
PCB004	YWV3000PZK4
PCB005	YWC005ZK05
V001	S4094P
CRT001	40CB4M
Q301	2SA1061-P
D303	LN217RP
D401	LN23SRP-D
D402	LN43SYP
L001	ELY-18A205B
L002	ELY 15V100A
MIC001	YWV2600EKR97
SW001	YWKSR11
CN001	YWMOJ-B65
CN002	YWS8-612J-01
CN003	YWCABLE3000E
CN004	YWS7-560P-45
CN101-PM	EMCL0207D52V
CN101-PF	EMCM0212D62
CN102-JM	EMCS0352M
CN104-JM	EMCS0852M
CN104-PF	YWCABLE3000E
CN105-JM	EMCS0452M
CN106-JM	EMCS0452M
CN106-PF	ELY 15V100A
CN107-JM	EMCS0652M
CN107-PF	ELY-18A205B
CN201-JM	EMCS1250M
CN202-JM	EMCS0250M
CN202-PF	EMCHUM0201W
CN203-JM	EMCS1050M
CN204-JM	EMCS0350M
CN204-PF	EMCHUM0301W
CN205-JM	EMCS0350M
CN206-JM	EMCS0450M
CN207-JM	EMCS0250M
BI101	EMCL0213B52V
BI102	EMCM1210B60V
BI103	EMCL0613D62W
BI104	EMCL0309D62
BI105	EMCL0608D62W
BI106	EMCL0207D52V
BI107	EMCM0315B52V
M001	YWV3000EKR3
M002	YWCC500WB01
M003	YWCC500FR03A
M004	YWCC704LB01
M005	YWCC500FR04A
M006	YWCC500WM02A
M007	YWFAC17XAM3
M008	YWFAC17XWB1
M009	YWFAC17XFM2
M010	YWCC704AM03A
M011	YWCC500AM05
M012	YWV3000EKR99
M013	YWCC500HR03
M014	YWCC500WM03
M015	YWB-26E-2
M016	YWV3000EUR1 YWV3000NUR1
M017	YWV3000EKR98 YWV3000NKR98
M019	YWCC500FR11
M020	YWS-XEGRB07
M021	YWCC500CM01B
M022	YWCC500FM01
M023	YWCC500FM02A
M024	YWCC500FM03A
M025	YWCC500WB99
M026	YWCC500LB17
M027	YWCC500FM04
M028	YWCC500HR01
M029	YWCC500HR02
M030	YWCC500FR05
M031	YWCC500UR04
M032	YWFAC17XAM6
M033	YWFAC17XLB1
M034	YWCC500AM18
M036	YWV2600EDM1 YWV2600NDM1
M037	YWCC500KR04
M038	YWV3000EUM1
M039	YWCC500WM01
M040	YWCC500AM01
M041	YWCC500AM02
M042	YWV3804WB03
M043	YWCC704AM04
M044	YWCC500FR12
M045	YWCC500AM04
M047	YWCC500FR06A
M048	YWCC500FR02
M049	YWCC500AM03
M052	YWCC500AM12B
M053	YWFAC17XAM4
M054	YWCC500AM14A
M055	YWCC500LB11A
M058	YWCC500AM11
M059	YWCC500LB13
M060	YWFAC17XAM5
M061	YWCC500KR05
M062	YWCC500KR06
M063	YVZC602HR04
M064	YVZC602WM01
M065	YVZC602WB01A
M066	YVZC602WB02
M067	YVZC612FM01
M069	YW-G-UR02A
M070	YW318224 YW318225
M071	YW318131
M072	YW318217
M073	YW318116
M074	YW318117
M075	YW614039A
M076	YW318135
M077	YW618146-D
M078	YW318219
M080	YWV2600EWB1


M003
M004
M005
M002
M009
M008
M007
M001
M039
CRT001
M006
M038
M037
M017
M069
M054
M055
D401
D402
M048
PCB004
MIC 001
M080
M020
L002
M043
M010
M042
CN004
M011
M040
CN106
M060
D303
BI105
BI101
CN102-JM
CN105-JM
CN104-JM
BI103
BI107
BI102
BI104
M059
M052
CN107-PF
M026
No.1.8M
CN002
Q301
M015
M024
M034
CN001
CN003
V001
M032
M033
PCB003
M031
M035
M053
CN104-PF
M047
M023
M019
CN107-JM
CN106-JM
BI 106
PCB001
CN101-PM
L001
M021
M041
M022
CN202-PF
CN204-PF
M075
M025
M027
M045
VR221
VR222
M030
PCB002
M059
CN202-JM
M049
CN203-JM
CN205-JM
CN201-JM
M074
M073
PCB005
M044
CN206-JM
CN207-JM
CN204-JM
Serial No. Label
M012
M058
M078
M072
M036
M070
M071
LENS UNIT
Zoom Lens
M076
M077
CN101-PF
M063
M066
M065
M062
M067
SW001
M064
M061
M014
M013
M029
M028
M016
1
2
3
4
5
6
7
8
9
10

○ **Numbers show screws**

NO.	Screws	Description
①	XTN2+4B	Binding Head Tapping Screws
②	XSB26+6FXK	Binding Head Screws
③	XSS2+5	Flush Head Machine Screws
④	XTB26+8BFXK	Binding Head Tapping Screws
⑤	XSN26+6	Binding Head Screws
⑥	XSN26+8BN	Binding Head Tapping Screws
⑦	XSN26+6BN	Binding Head Screw
⑧	XSN26+4	Binding Head Screw
⑨	XSS26+6	Flush Head Machine Screws
⑩	XYN26+F6FX	Machine Screw and Washer Assembly

PACKAGING


M082
M081
M086
CAMERA
M083
M086
M084
M086

M081	YWV3000ERB1 YWV3000NRB1
M082	XZB26X40C05
M083	XZB30X50A03
M084	XZB20X35A02
M086	YWV3000EPB1 YWV3000NPB1

ORDER NO. VKD81070557S8

Service Manual

Colour Video Cameras

WV-3000E/WV-3000N

Supplement—1
Panasonic

- The Deflection Circuit Board (YWV3000EZKI) has been modified to increase arc resistance from Serial No. 140001 and higher.
- Please file this Supplement Service Manual with the Service Manual (AVD-8103-544).

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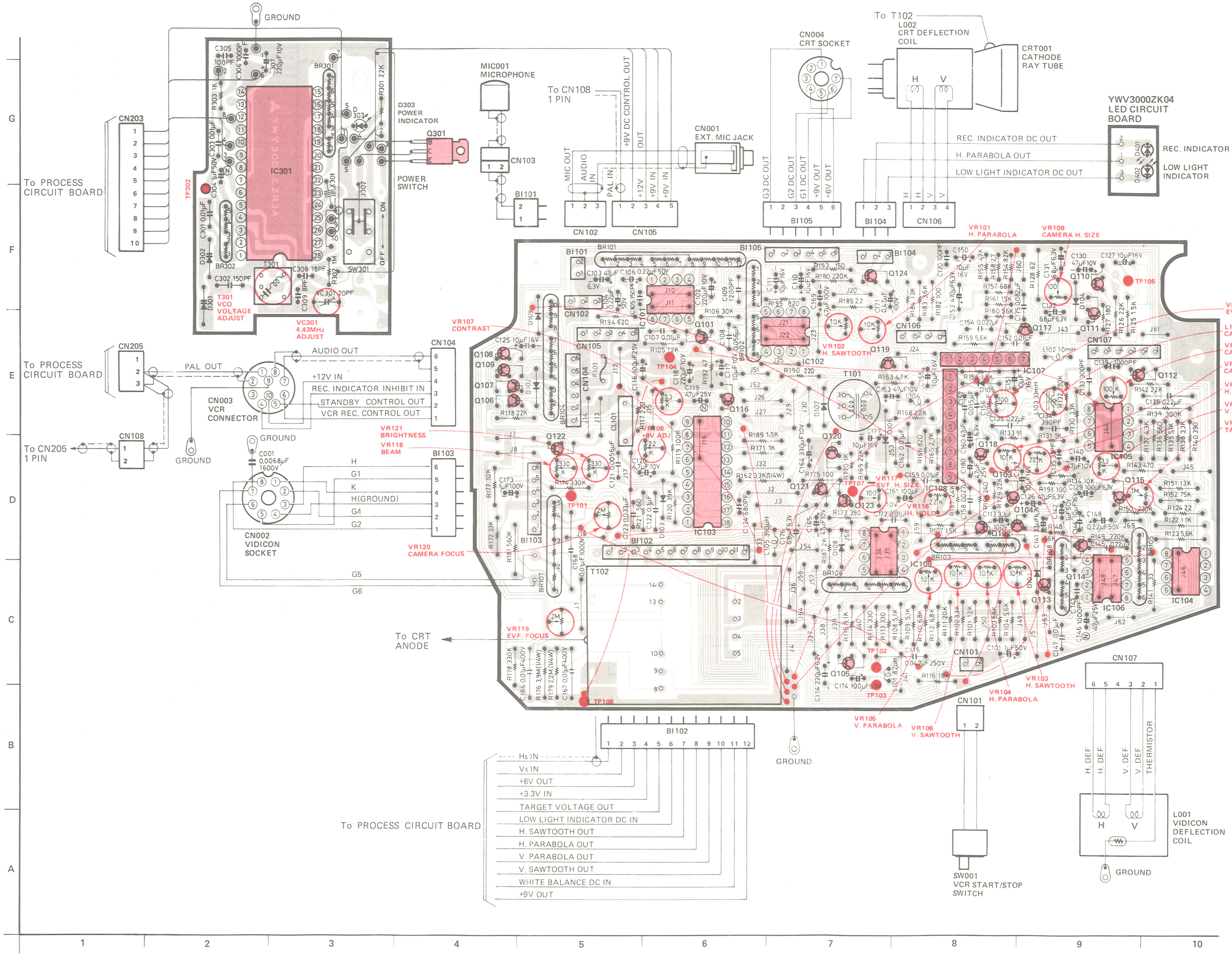
National/Panasonic

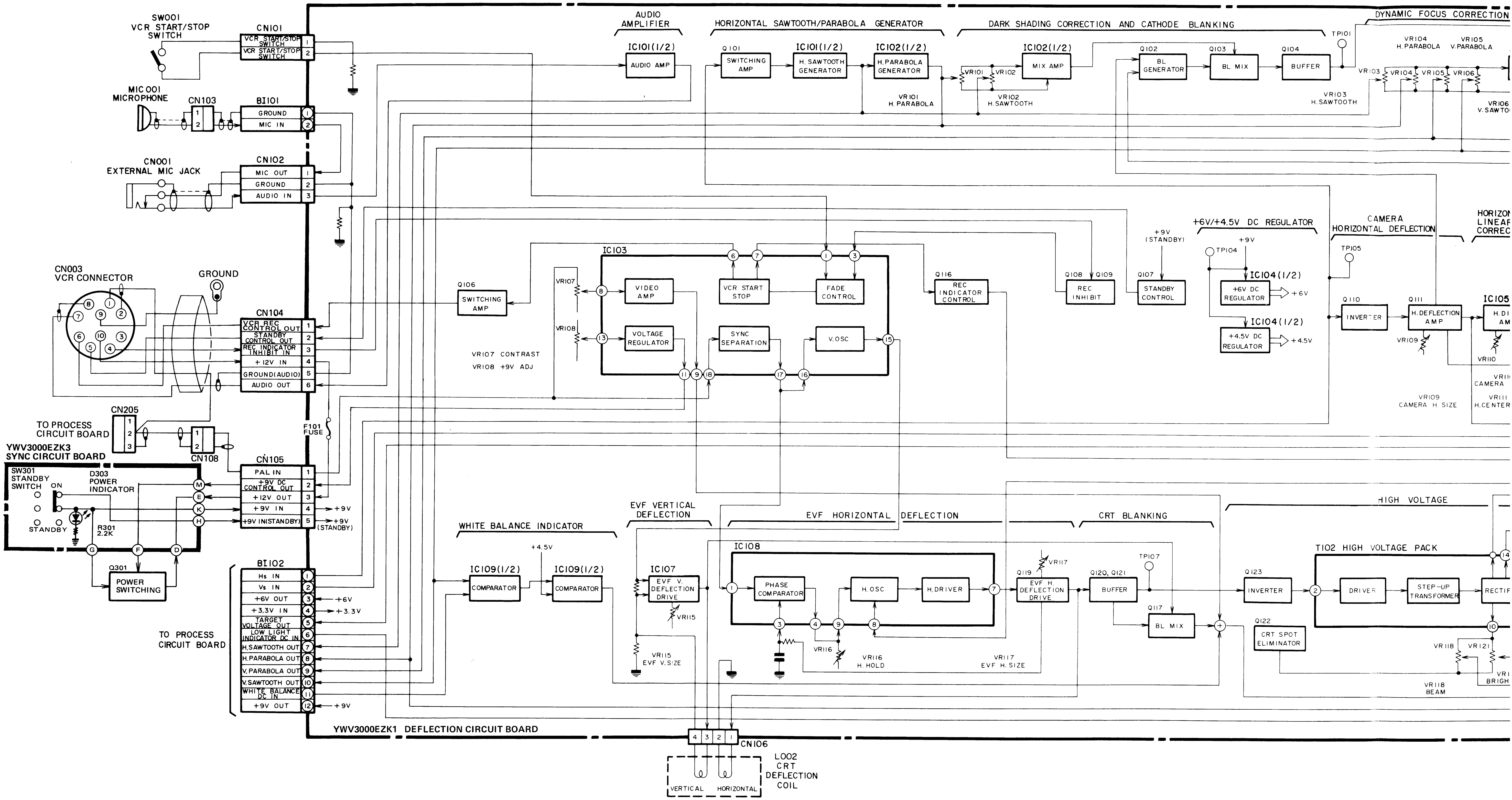
Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

CONDUCTOR VIEW OF DEFLECTION CIRCUIT BOARD (YWV3000EZK1) AND SYNC CIRCUIT BOARD (YWV3000EZK3)

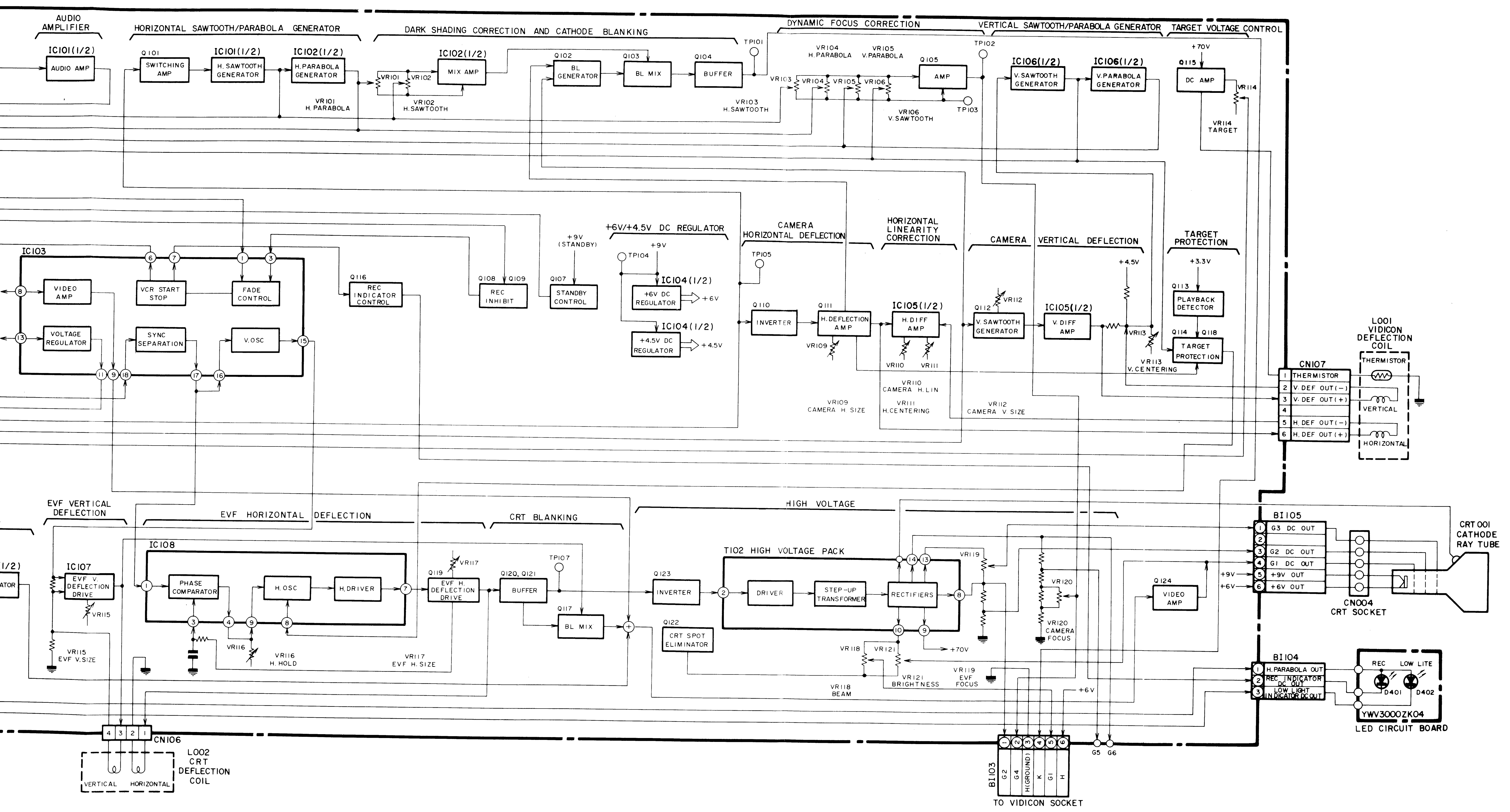
IC101	YHSNJM4558D	F6
IC102	NJM4560D	E7
IC103	AN6055	D6
IC104	NJM4556D	C10
IC105	NJM4556DT	E9
IC106	YHSNJM4558D	C9
IC107	AN374P	E8
IC108	AN5750	D8, E8
IC109	AN6914	D7
IC301	YWHD44007A	F3, G3
Q101	2SC2377-CD	E6
Q102	2SC2377-CD	D8
Q103	2SA749A	D8
Q104	2SA749A	D9
Q105	2SC1980-RST	C7
Q106	2SD636-QRS	E4
Q107	2SB641-QRS	E4
Q108	2SD636-QRS	E4
Q109	2SB641-QRS	E4
Q110	2SD638-QR	F9
Q111	2SD975	E9
Q112	2SD638-QR	E9
Q113	2SB641-QRS	C9
Q114	2SD636-QRS	D9
Q115	2SC1473NCQRS	D9
Q116	2SD661-TU	E6
Q117	2SB641-QRS	E9
Q118	2SD636-QRS	D8
Q119	2SD975	E7
Q120	2SC2377-CD	D7
Q121	2SA838-CD	D7
Q122	2SA749A	D5
Q123	2SD638-QR	D7
Q124	2SC1980-RST	F7
Q301	2SA1061-P	G4
D101	MA165	C9
D102	MA165	E5
D103	MA165	D6
D104	MA165	F9
D105	MA165	E8
D106	YUDRU2M	D7
D107	MA165	E7
D108	MA165	D7
D109	MA165	E5
D301	YUD1S2688	F2
D302	YUD1S2688	F2
D303	LN217RP	G3
D401	LN23SRP-D	G10
D402	LN43SYP	G10


G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
GROUND
CN203
To PROCESS CIRCUIT BOARD
IC301
TP302
T301 VCO VOLTAGE ADJUST
VC301 4.43MHz ADJUST
D303 POWER INDICATOR
Q301
POWER SWITCH
SW301
MIC001 MICROPHONE
To CN108 1 PIN
CN103
BI101
CN001 EXT. MIC JACK
MIC OUT
AUDIO IN
PAL IN
+9V DC CONTROL OUT
OUT
+12V
+9V IN
+9V IN
CN102
CN105
CN004 CRT SOCKET
G3 DC OUT
G2 DC OUT
G1 DC OUT
+9V OUT
+6V OUT
BI105
To T102
L002 CRT DEFLECTION COIL
CRT001 CATHODE RAY TUBE
H
V
BI104
CN106
YWV3000ZK04 LED CIRCUIT BOARD
REC. INDICATOR DC OUT
H. PARABOLA OUT
LOW LIGHT INDICATOR DC OUT
REC. INDICATOR
LOW LIGHT INDICATOR
D401
D402
VR101 H. PARABOLA
VR109 CAMERA H. SIZE
TP105
VR115 EVF. V. SIZE
L103 CAMERA H. LIN-1
VR112 CAMERA V. SIZE
VR110 CAMERA H. LIN-2
VR111 H. CENTERING
VR113 V. CENTERING
VR114 TARGET
VR107 CONTRAST
VR102 H. SAWTOOTH
CN205
PAL OUT
CN003 VCR CONNECTOR
AUDIO OUT
+12V IN
REC. INDICATOR INHIBIT IN
STANDBY CONTROL OUT
VCR REC. CONTROL OUT
CN104
CN108
To CN205 1 PIN
GROUND
C001 0.0068μF 1600V
VR121 BRIGHTNESS
VR118 BEAM
BI103
H
G1
K
H(GROUND)
G4
G2
CN002 VIDICON SOCKET
G5
G6
VR120 CAMERA FOCUS
VR108 +9V ADJ
TP104
TP101
TP107
VR117 EVF. H. SIZE
VR116 H. HOLD
IC101
IC102
IC103
IC104
IC105
IC106
IC107
IC108
IC109
BI102
T102
VR119 EVF. FOCUS
To CRT ANODE
TP108
TP102
TP103
VR105 V. PARABOLA
VR106 V. SAWTOOTH
VR104 H. PARABOLA
VR103 H. SAWTOOTH
CN101
CN107
GROUND
Hs IN
Vs IN
+6V OUT
+3.3V IN
TARGET VOLTAGE OUT
LOW LIGHT INDICATOR DC IN
H. SAWTOOTH OUT
H. PARABOLA OUT
V. PARABOLA OUT
V. SAWTOOTH OUT
WHITE BALANCE DC IN
+9V OUT
To PROCESS CIRCUIT BOARD
SW001 VCR START/STOP SWITCH
H. DEF
H. DEF
V. DEF
V. DEF
THERMISTOR
L001 VIDICON DEFLECTION COIL
GROUND

BLOCK DIAGRAM OF DEFLECTION CIRCUIT BOARD (YWV3000EZK1)

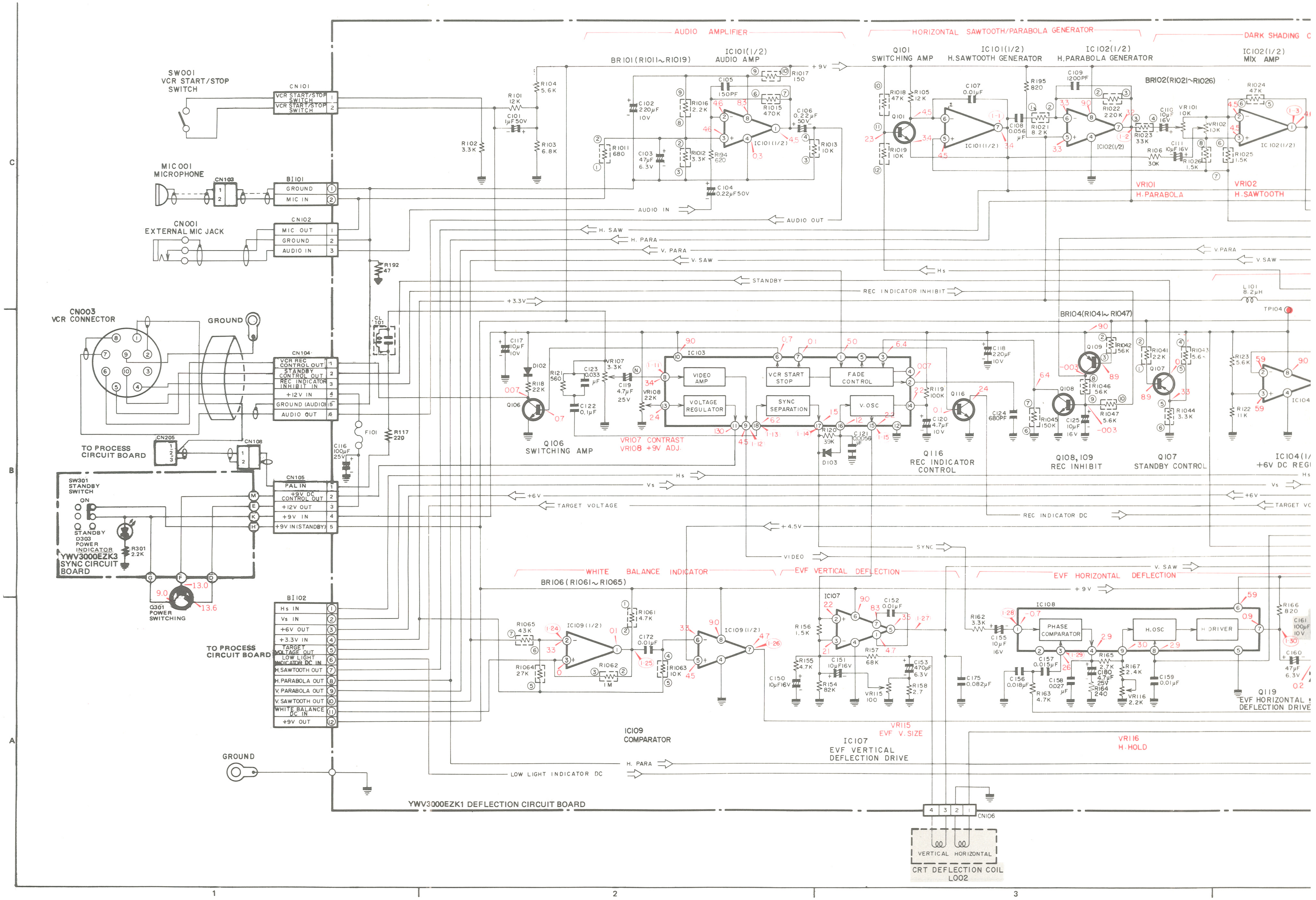

SW001
VCR START/STOP SWITCH
CN101
VCR START/STOP SWITCH
VCR START/STOP SWITCH
MIC001 MICROPHONE
CN103
B1101
GROUND
MIC IN
CN001 EXTERNAL MIC JACK
CN102
MIC OUT
GROUND
AUDIO IN
CN003 VCR CONNECTOR
GROUND
CN104
VCR REC CONTROL OUT
STANDBY CONTROL OUT
REC INDICATOR INHIBIT IN
+12V IN
GROUND(AUDIO)
AUDIO OUT
CN205
TO PROCESS CIRCUIT BOARD
YWV3000EZK3 SYNC CIRCUIT BOARD
CN108
SW301 STANDBY SWITCH
ON
STANDBY
D303 POWER INDICATOR
R301 2.2K
Q301 POWER SWITCHING
F101 FUSE
CN105
PAL IN
+9V DC CONTROL OUT
+12V OUT
+9V IN
+9V IN(STANDBY)
+9V
+9V (STANDBY)
B1102
Hs IN
Vs IN
+6V OUT
+3.3V IN
TARGET VOLTAGE OUT
LOW LIGHT INDICATOR DC IN
H.SAWTOOTH OUT
H.PARABOLA OUT
V.PARABOLA OUT
V.SAWTOOTH OUT
WHITE BALANCE DC IN
+9V OUT
+6V
+3.3V
+9V
TO PROCESS CIRCUIT BOARD
YWV3000EZK1 DEFLECTION CIRCUIT BOARD
AUDIO AMPLIFIER
IC101(1/2)
AUDIO AMP
HORIZONTAL SAWTOOTH/PARABOLA GENERATOR
Q101
SWITCHING AMP
IC101(1/2)
H. SAWTOOTH GENERATOR
IC102(1/2)
H. PARABOLA GENERATOR
VR101 H. PARABOLA
DARK SHADING CORRECTION AND CATHODE BLANKING
VR101
VR102
IC102(1/2)
MIX AMP
VR102 H. SAWTOOTH
Q102
BL GENERATOR
Q103
BL MIX
Q104
BUFFER
TP101
VR103 H. SAWTOOTH
DYNAMIC FOCUS CORRECTION
VR104 H. PARABOLA
VR105 V. PARABOLA
VR103
VR104
VR105
VR106
VR106 V. SAWTO
IC103
VIDEO AMP
VOLTAGE REGULATOR
VCR START STOP
FADE CONTROL
SYNC SEPARATION
V. OSC
VR107
VR108
VR107 CONTRAST
VR108 +9V ADJ
Q106
SWITCHING AMP
Q116
REC INDICATOR CONTROL
Q108 Q109
REC INHIBIT
+9V (STANDBY)
Q107
STANDBY CONTROL
+6V/+4.5V DC REGULATOR
+9V
TP104
IC104(1/2)
+6V DC REGULATOR
+6V
IC104(1/2)
+4.5V DC REGULATOR
+4.5V
CAMERA HORIZONTAL DEFLECTION
TP105
Q110
INVERTER
Q111
H. DEFLECTION AMP
VR109
VR109 CAMERA H SIZE
HORIZON LINEAR CORREC
IC105
H. DI AM
VR110
VR11 CAMERA
VR111 H.CENTER
WHITE BALANCE INDICATOR
+4.5V
IC109(1/2)
COMPARATOR
IC109(1/2)
COMPARATOR
EVF VERTICAL DEFLECTION
IC107
EVF V. DEFLECTION DRIVE
VR115
VR115 EVF V.SIZE
EVF HORIZONTAL DEFLECTION
IC108
PHASE COMPARATOR
H. OSC
H. DRIVER
VR116
VR116 H. HOLD
Q119
VR117
EVF H. DEFLECTION DRIVE
VR117 EVF H. SIZE
CRT BLANKING
Q120, Q121
BUFFER
TP107
Q117
BL MIX
HIGH VOLTAGE
Q123
INVERTER
Q122
CRT SPOT ELIMINATOR
T102 HIGH VOLTAGE PACK
DRIVER
STEP-UP TRANSFORMER
RECTIF
VR118
VR121
VR118 BEAM
VR1 BRIGH
CN106
L002 CRT DEFLECTION COIL
VERTICAL
HORIZONTAL

BLOCK DIAGRAM OF DEFLECTION CIRCUIT BOARD (YWV3000EZK1)

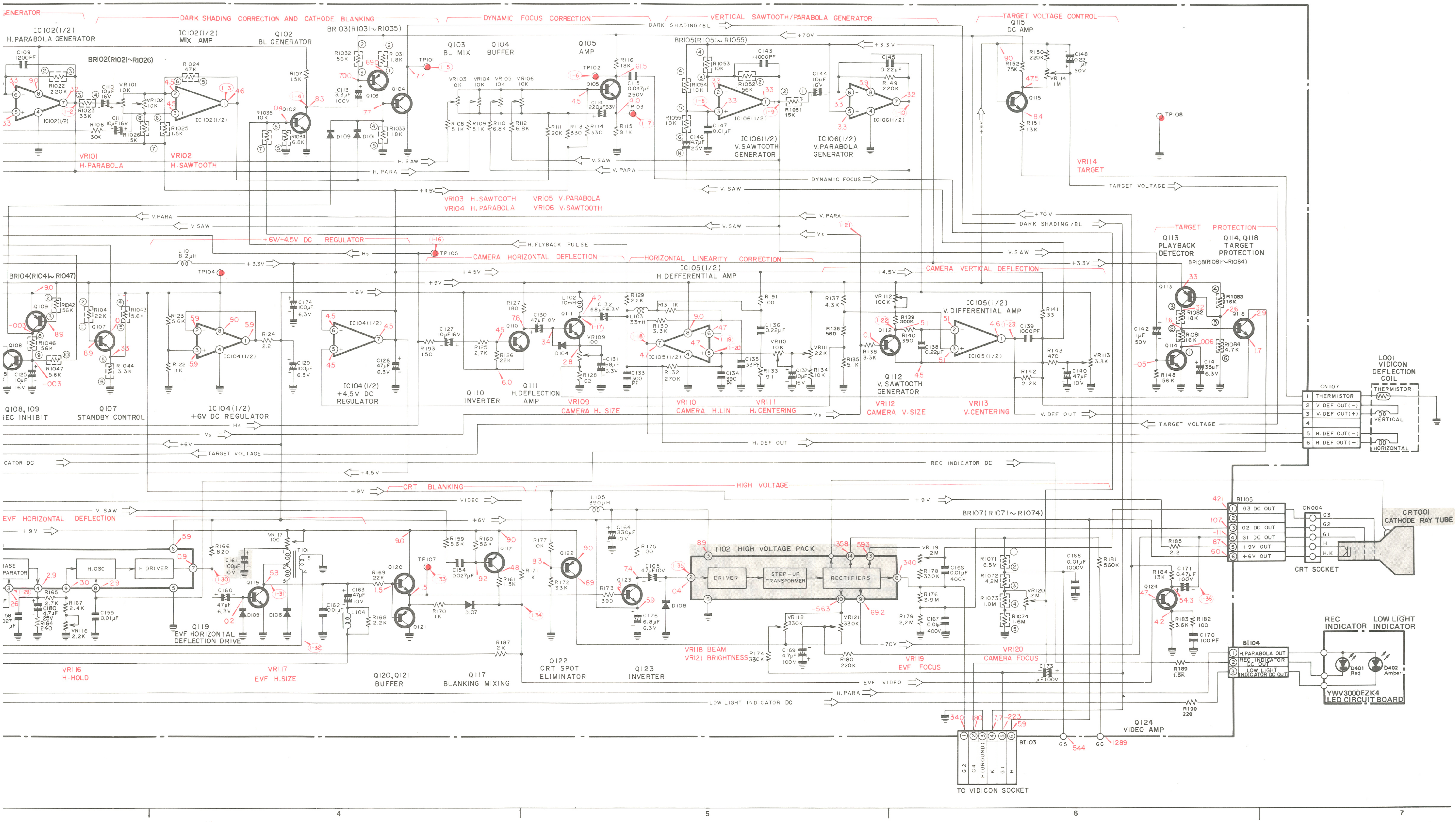

AUDIO AMPLIFIER
IC101(1/2)
AUDIO AMP
HORIZONTAL SAWTOOTH/PARABOLA GENERATOR
Q101
SWITCHING AMP
IC101(1/2)
H. SAWTOOTH GENERATOR
IC102(1/2)
H. PARABOLA GENERATOR
VR101 H. PARABOLA
DARK SHADING CORRECTION AND CATHODE BLANKING
IC102(1/2)
MIX AMP
VR101
VR102
VR102 H. SAWTOOTH
Q102
BL GENERATOR
Q103
BL MIX
Q104
BUFFER
TP101
DYNAMIC FOCUS CORRECTION
VR104 H. PARABOLA
VR105 V. PARABOLA
Q105
AMP
VR103
VR104
VR105
VR106
VR103 H. SAWTOOTH
VR106 V. SAWTOOTH
TP103
TP102
VERTICAL SAWTOOTH/PARABOLA GENERATOR
IC106(1/2)
V. SAWTOOTH GENERATOR
IC106(1/2)
V. PARABOLA GENERATOR
TARGET VOLTAGE CONTROL
+70V
Q115
DC AMP
VR114
VR114 TARGET
IC103
VIDEO AMP
VCR START STOP
FADE CONTROL
VOLTAGE REGULATOR
SYNC SEPARATION
V. OSC
Q116
REC INDICATOR CONTROL
Q108 Q109
REC INHIBIT
+9V (STANDBY)
Q107
STANDBY CONTROL
+6V/+4.5V DC REGULATOR
+9V
TP104
IC104(1/2)
+6V DC REGULATOR
+6V
IC104(1/2)
+4.5V DC REGULATOR
+4.5V
CAMERA HORIZONTAL DEFLECTION
TP105
Q110
INVERTER
Q111
H. DEFLECTION AMP
VR109
VR109 CAMERA H SIZE
HORIZONTAL LINEARITY CORRECTION
IC105(1/2)
H. DIFF AMP
VR110
VR111
VR110 CAMERA H. LIN
VR111 H. CENTERING
CAMERA VERTICAL DEFLECTION
Q112
VR112
V. SAWTOOTH GENERATOR
IC105(1/2)
V. DIFF AMP
+4.5V
VR113
VR113 V. CENTERING
VR112 CAMERA V SIZE
TARGET PROTECTION
+3.3V
Q113
PLAYBACK DETECTOR
Q114 Q118
TARGET PROTECTION
CN107
1 THERMISTOR
2 V. DEF OUT(−)
3 V. DEF OUT(+)
4
5 H. DEF OUT(−)
6 H. DEF OUT(+)
L001 VIDICON DEFLECTION COIL
THERMISTOR
VERTICAL
HORIZONTAL
EVF VERTICAL DEFLECTION
IC107
EVF V. DEFLECTION DRIVE
VR115
VR115 EVF V. SIZE
EVF HORIZONTAL DEFLECTION
IC108
PHASE COMPARATOR
H. OSC
H. DRIVER
VR116
VR116 H. HOLD
Q119
VR117
EVF H. DEFLECTION DRIVE
VR117 EVF H. SIZE
CRT BLANKING
Q120, Q121
BUFFER
TP107
Q117
BL MIX
Q122
CRT SPOT ELIMINATOR
HIGH VOLTAGE
Q123
INVERTER
T102 HIGH VOLTAGE PACK
DRIVER
STEP-UP TRANSFORMER
RECTIFIERS
+70V
VR118
VR121
VR118 BEAM
VR121 BRIGHTNESS
VR119
VR119 EVF FOCUS
VR120
VR120 CAMERA FOCUS
+6V
Q124
VIDEO AMP
+9V
+6V
B1105
1 G3 DC OUT
2
3 G2 DC OUT
4 G1 DC OUT
5 +9V OUT
6 +6V OUT
CN004 CRT SOCKET
CRT001 CATHODE RAY TUBE
B1104
1 H. PARABOLA OUT
2 REC INDICATOR DC OUT
3 LOW LIGHT INDICATOR DC OUT
REC
LOW LITE
D401
D402
YWV3000ZK04
LED CIRCUIT BOARD
CN106
4 3 2 1
L002 CRT DEFLECTION COIL
VERTICAL
HORIZONTAL
B1103
1 G2
2 G4
3 H(GROUND)
4 K
5 G1
6 H
TO VIDICON SOCKET
G5
G6

SCHEMATIC DIAGRAM OF DEFLECTION CI

IC101	YHSNJM4558D	C2, C3
IC102	NJM4560D	C3, C4
IC103	AN6055	B2, B3
IC104	NJM4556D	B4
IC105	NJM4556DT	B5, B6
IC106	YHSNJM4558D	C5
IC107	AN374P	A3
IC108	AN5750	A3, A4
IC109	AN6914	A2
Q101	2SC2377-CD	C3
Q102	2SC2377-CD	C4
Q103	2SA749A	C4
Q104	2SA749A	C4
Q105	2SC1980-RST	C5
Q106	2SD636-QRS	B2
Q107	2SB641-QRS	B3
Q108	2SD636-QRS	B3
Q109	2SB641-QRS	B3
Q110	2SD638-QR	B4
Q111	2SD975	B5
Q112	2SD638-QR	B6
Q113	2SB641-QRS	B6
Q114	2SD636-QRS	B6
Q115	2SC1473NCQRS	C6
Q116	2SD661-TU	B3
Q117	2SB641-QRS	A4
Q118	2SD636-QRS	B6
Q119	2SD975	A4
Q120	2SC2377-CD	A4
Q121	2SA838-CD	A4
Q122	2SA749A	A5
Q123	2SD638-QR	A5
Q124	2SC1980-RST	A6
Q301	2SA1061-P	A1
D101	MA165	C4
D102	MA165	B2
D103	MA165	B3
D104	MA165	B5
D105	MA165	A4
D106	YUDRU2M	A4
D107	MA165	A4
D108	MA165	A5
D110	MA165	C4
D303	LN217RP	B1
D401	LN23SRP-D	A7
D402	LN43SYP	A7

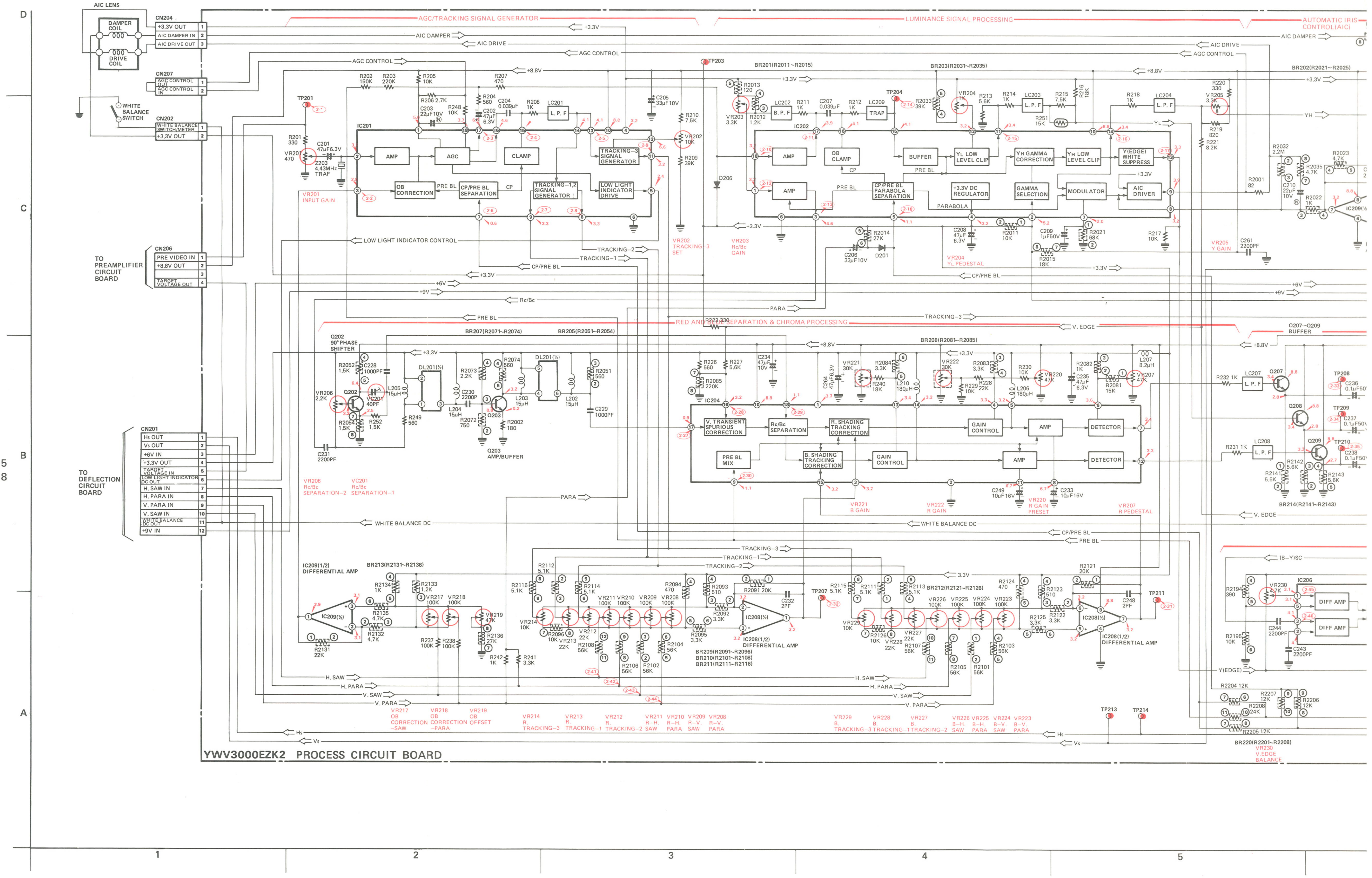

C
B
A
1
2
3
SW001
VCR START/STOP
SWITCH
CN101
VCR START/STOP SWITCH
MIC001
MICROPHONE
CN103
BI101
GROUND
MIC IN
CN001
EXTERNAL MIC JACK
CN102
MIC OUT
GROUND
AUDIO IN
CN003
VCR CONNECTOR
GROUND
CN104
VCR REC CONTROL OUT
STANDBY CONTROL OUT
REC INDICATOR INHIBIT IN
+12V IN
GROUND (AUDIO)
AUDIO OUT
TO PROCESS CIRCUIT BOARD
CN205
CN108
SW301
STANDBY SWITCH
ON
STANDBY
D303
POWER INDICATOR
YWV3000EZK3
SYNC CIRCUIT BOARD
R301 2.2K
Q301
POWER SWITCHING
CN105
PAL IN
+9V DC CONTROL OUT
+12V OUT
+9V IN
+9V IN (STANDBY)
BI102
Hs IN
Vs IN
+6V OUT
+3.3V IN
TARGET VOLTAGE OUT
LOW LIGHT INDICATOR DC IN
H.SAWTOOTH OUT
H.PARABOLA OUT
V.PARABOLA OUT
V.SAWTOOTH OUT
WHITE BALANCE DC IN
+9V OUT
TO PROCESS CIRCUIT BOARD
GROUND
YWV3000EZK1 DEFLECTION CIRCUIT BOARD
AUDIO AMPLIFIER
BR101 (R1011~R1019)
IC101(1/2)
AUDIO AMP
AUDIO IN
AUDIO OUT
H. SAW
H. PARA
V. PARA
V. SAW
STANDBY
REC INDICATOR INHIBIT
+3.3V
HORIZONTAL SAWTOOTH/PARABOLA GENERATOR
Q101
SWITCHING AMP
IC101(1/2)
H.SAWTOOTH GENERATOR
IC102(1/2)
H.PARABOLA GENERATOR
BRI02(R1021~R1026)
VR101
H.PARABOLA
VR102
H.SAWTOOTH
DARK SHADING C
IC102(1/2)
MIX AMP
L101 8.2μH
TP104
IC103
VIDEO AMP
VOLTAGE REGULATOR
VCR START STOP
SYNC SEPARATION
FADE CONTROL
V.OSC
Q106
SWITCHING AMP
VR107 CONTRAST
VR108 +9V ADJ
D102
D103
Q116
REC INDICATOR CONTROL
BR104(R1041~R1047)
Q108, 109
REC INHIBIT
Q107
STANDBY CONTROL
IC104
+6V DC REG
Hs
Vs
+6V
TARGET VOLTAGE
REC INDICATOR DC
+4.5V
SYNC
VIDEO
WHITE BALANCE INDICATOR
BR106 (R1061~R1065)
IC109(1/2)
IC109
COMPARATOR
EVF VERTICAL DEFLECTION
IC107
EVF VERTICAL DEFLECTION DRIVE
VR115
EVF V. SIZE
EVF HORIZONTAL DEFLECTION
V. SAW
+9V
IC108
PHASE COMPARATOR
H.OSC
H.DRIVER
Q119
EVF HORIZONTAL DEFLECTION DRIVE
VR116
H.HOLD
H. PARA
LOW LIGHT INDICATOR DC
CN106
VERTICAL
HORIZONTAL
CRT DEFLECTION COIL
L002

AM OF DEFLECTION CIRCUIT BOARD (YWV3000EZK1)


GENERATOR
DARK SHADING CORRECTION AND CATHODE BLANKING
DYNAMIC FOCUS CORRECTION
VERTICAL SAWTOOTH/PARABOLA GENERATOR
TARGET VOLTAGE CONTROL
IC102(1/2) H.PARABOLA GENERATOR
IC102(1/2) MIX AMP
Q102 BL GENERATOR
BR102(R1021~R1026)
BR103(R1031~R1035)
Q103 BL MIX
Q104 BUFFER
Q105 AMP
BR105(R1051~R1055)
Q115 DC AMP
IC106(1/2) V.SAWTOOTH GENERATOR
IC106(1/2) V.PARABOLA GENERATOR
VR101 H.PARABOLA
VR102 H.SAWTOOTH
VR103 H.SAWTOOTH
VR104 H.PARABOLA
VR105 V.PARABOLA
VR106 V.SAWTOOTH
VR114 TARGET
TP101
TP102
TP103
TP104
TP105
TP107
TP108
DARK SHADING/BL
H.SAW
H.PARA
V.SAW
V.PARA
DYNAMIC FOCUS
TARGET VOLTAGE
+70V
+3.3V
+4.5V
+6V
+9V
Vs
Hs
H.FLYBACK PULSE
+6V/+4.5V DC REGULATOR
CAMERA HORIZONTAL DEFLECTION
HORIZONTAL LINEARITY CORRECTION
CAMERA VERTICAL DEFLECTION
TARGET PROTECTION
Q113 PLAYBACK DETECTOR
Q114, Q118 TARGET PROTECTION
BR108(R1081~R1084)
BR104(R1041~R1047)
Q108, 109 REC INHIBIT
Q107 STANDBY CONTROL
IC104(1/2) +6V DC REGULATOR
IC104(1/2) +4.5V DC REGULATOR
Q110 INVERTER
Q111 H.DEFLECTION AMP
IC105(1/2) H.DEFFERENTIAL AMP
IC105(1/2) V.DIFFERENTIAL AMP
Q112 V.SAWTOOTH GENERATOR
VR109 CAMERA H.SIZE
VR110 CAMERA H.LIN
VR111 H.CENTERING
VR112 CAMERA V.SIZE
VR113 V.CENTERING
V.DEF OUT
H.DEF OUT
L001 VIDICON DEFLECTION COIL
CN107
1 THERMISTOR
2 V.DEF OUT(−)
3 V.DEF OUT(+)
4
5 H.DEF OUT(−)
6 H.DEF OUT(+)
THERMISTOR
VERTICAL
HORIZONTAL
REC INDICATOR DC
CATOR DC
CRT BLANKING
HIGH VOLTAGE
EVF HORIZONTAL DEFLECTION
VIDEO
H.OSC
H.DRIVER
PHASE SEPARATOR
Q119 EVF HORIZONTAL DEFLECTION DRIVE
VR116 H.HOLD
VR117 EVF H.SIZE
Q120, Q121 BUFFER
Q117 BLANKING MIXING
Q122 CRT SPOT ELIMINATOR
Q123 INVERTER
T101
T102 HIGH VOLTAGE PACK
DRIVER
STEP-UP TRANSFORMER
RECTIFIERS
VR118 BEAM
VR121 BRIGHTNESS
VR119 EVF FOCUS
VR120 CAMERA FOCUS
BR107(R1071~R1074)
Q124 VIDEO AMP
B105
G3 DC OUT
G2 DC OUT
G1 DC OUT
+9V OUT
+6V OUT
CN004
G3
G2
G1
H
H.K
CRT SOCKET
CRT001 CATHODE RAY TUBE
B104
H.PARABOLA OUT
REC INDICATOR DC OUT
LOW LIGHT INDICATOR DC OUT
REC INDICATOR
LOW LIGHT INDICATOR
D401 Red
D402 Amber
YWV3000EZK4 LED CIRCUIT BOARD
EVF VIDEO
LOW LIGHT INDICATOR DC
BT103
G2
G4
H(GROUND)
K
G1
H
G5
G6
TO VIDICON SOCKET
4
5
6
7

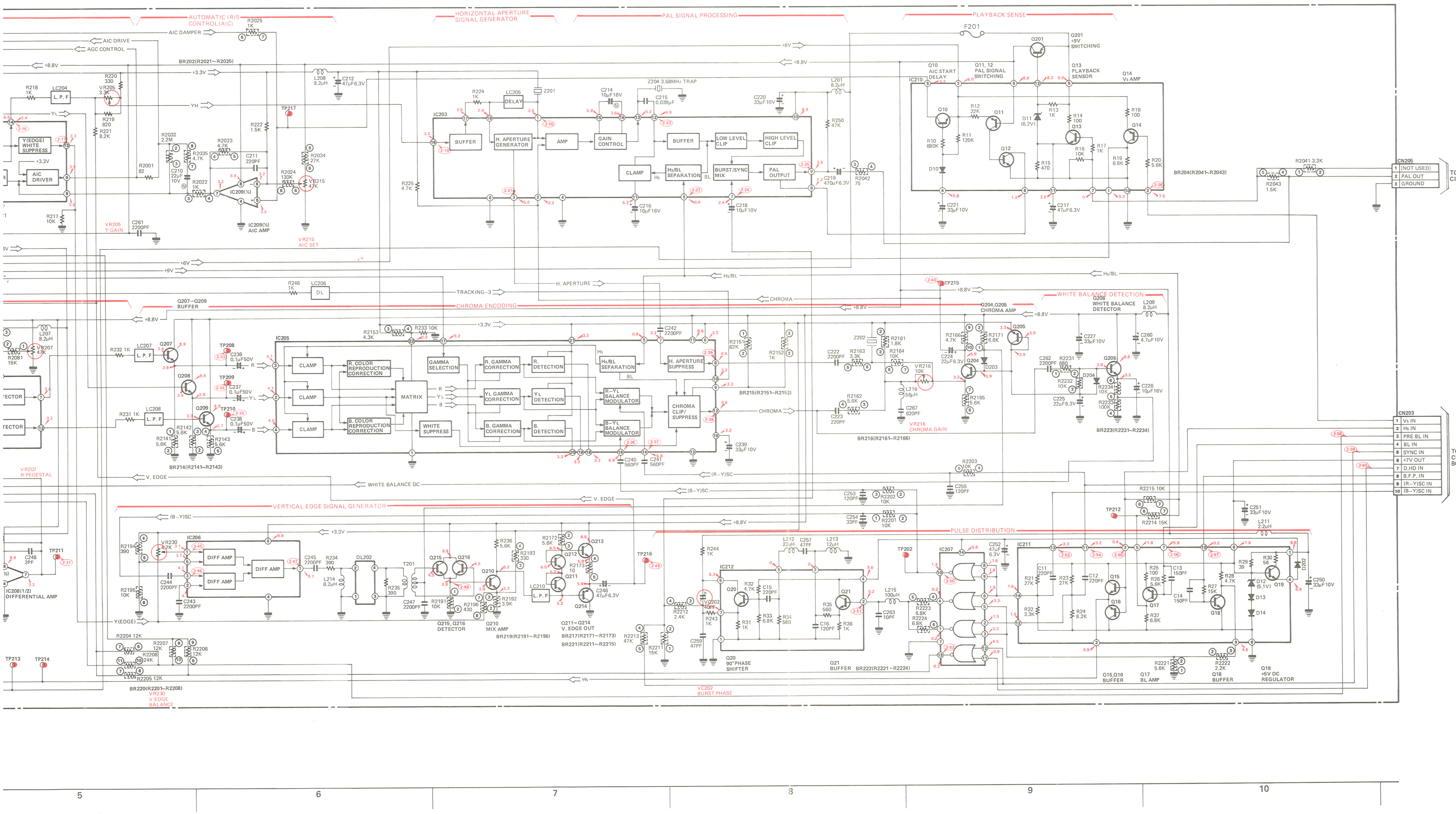
SCHEMATIC DIAGRAM OF P

IC201	AN6015	C2, C3
IC202	AN6012	C4, C5
IC203	AN6022	C7, C8
IC204	AN6031	B3, B4, B5
IC205	AN6045	B6, B7, B8
IC206	AN614	A6
IC207	HD74LS02A	A9
IC208	YNJM4556D	A3, A5
IC209	YHSNJM4558D	A2, C6
IC210	EHMK220L20S	C9, C10
IC211	EHMK727A98S	A9, A10
IC212	EHMK111A97	A8
Q201	2SB793A-RST	D9
Q202	2SC2377-CD	B2
Q203	2SD636-QRS	B2
Q204	2SD636-QRS	B9
Q205	2SC2377-CD	B9
Q206	2SC2377-CD	B9
Q207	2SD636-QRS	B5
Q208	2SD636-QRS	B6
Q209	2SD636-QRS	B6
Q210	2SD636-QRS	A7
Q211	2SC2377-CD	A7
Q212	2SD636-QRS	A7
Q213	2SC2377-CD	A7
Q214	2SA838-CD	A7
Q215	2SC2377-CD	A7
Q216	2SC2377-CD	A7
D201	MA165	C4
D202	MA26W	A10
D203	MA165	B9
D204	MA165	B9
D206	MA165	C3

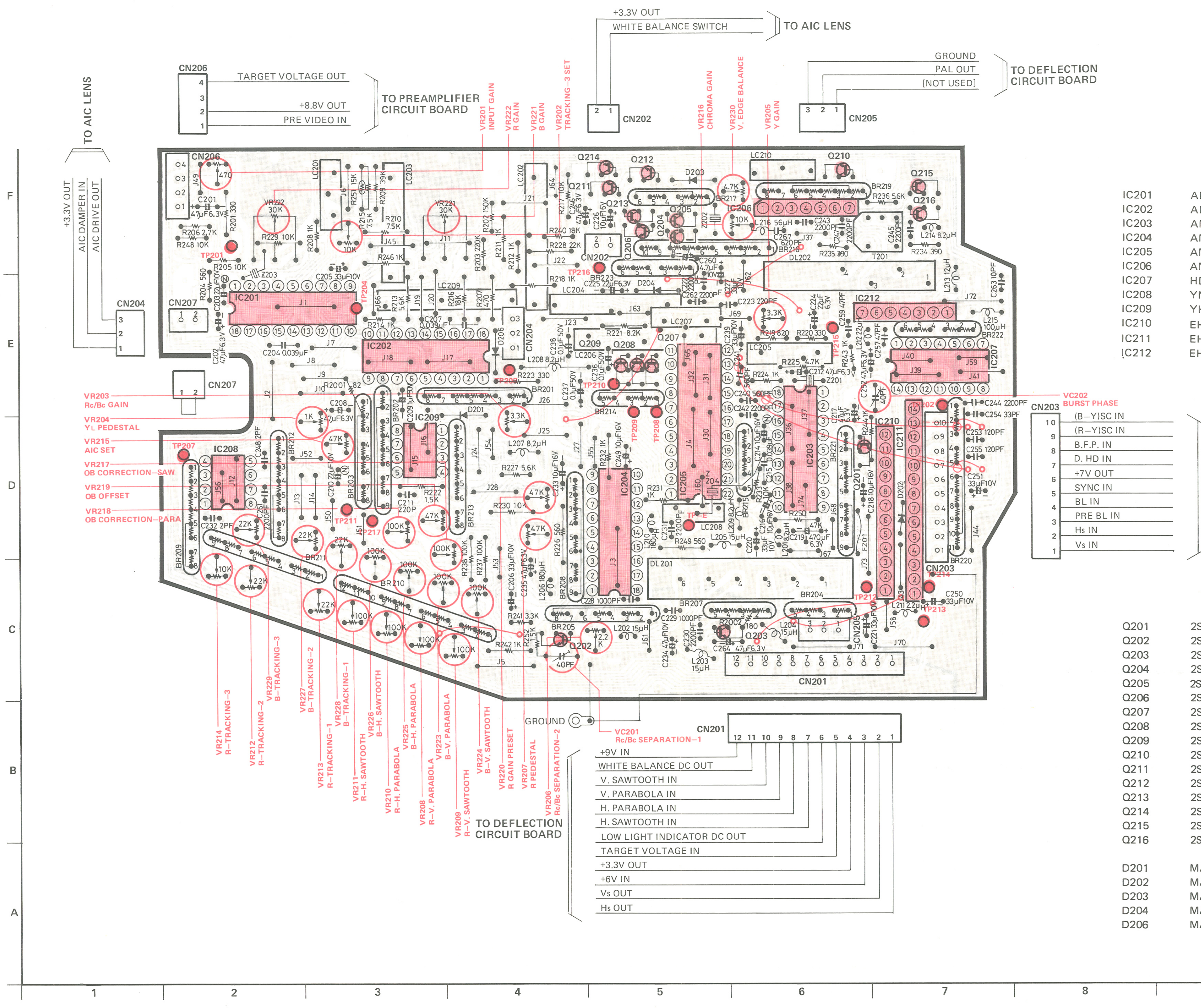


D
C
B
A
1
2
3
4
5
AIC LENS
DAMPER COIL
DRIVE COIL
CN204
+3.3V OUT
AIC DAMPER IN
AIC DRIVE OUT
CN207
AGC CONTROL OUT
AGC CONTROL IN
WHITE BALANCE SWITCH
CN202
WHITE BALANCE SWITCH/METER
+3.3V OUT
TO PREAMPLIFIER CIRCUIT BOARD
CN206
PRE VIDEO IN
+8.8V OUT
TARGET VOLTAGE OUT
TO DEFLECTION CIRCUIT BOARD
CN201
Hs OUT
Vs OUT
+6V IN
+3.3V OUT
TARGET VOLTAGE IN
LOW LIGHT INDICATOR DC OUT
H. SAW IN
H. PARA IN
V. PARA IN
V. SAW IN
WHITE BALANCE DC OUT
+9V IN
AGC/TRACKING SIGNAL GENERATOR
LUMINANCE SIGNAL PROCESSING
AUTOMATIC IRIS CONTROL(AIC)
RED AND BLUE SEPARATION & CHROMA PROCESSING
IC201
AMP
AGC
CLAMP
TRACKING-3 SIGNAL GENERATOR
OB CORRECTION
CP/PRE BL SEPARATION
TRACKING-1,2 SIGNAL GENERATOR
LOW LIGHT INDICATOR DRIVE
IC202
AMP
OB CLAMP
BUFFER
YL LOW LEVEL CLIP
YH GAMMA CORRECTION
YH LOW LEVEL CLIP
Y(EDGE) WHITE SUPPRESS
+3.3V DC REGULATOR
GAMMA SELECTION
MODULATOR
AIC DRIVER
CP/PRE BL PARABOLA SEPARATION
BR201(R2011~R2015)
BR203(R2031~R2035)
BR202(R2021~R2025)
VR201 INPUT GAIN
VR202 TRACKING-3 SET
VR203 Rc/Bc GAIN
VR204 YL PEDESTAL
VR205 Y GAIN
Q202 90° PHASE SHIFTER
Q203 AMP/BUFFER
BR207(R2071~R2074)
BR205(R2051~R2054)
BR208(R2081~R2085)
IC204
V. TRANSIENT SPURIOUS CORRECTION
Rc/Bc SEPARATION
R. SHADING TRACKING CORRECTION
GAIN CONTROL
AMP
DETECTOR
PRE BL MIX
B. SHADING TRACKING CORRECTION
VR206 Rc/Bc SEPARATION-2
VR201 Rc/Bc SEPARATION-1
VR221 B GAIN
VR222 R GAIN
VR220 R GAIN PRESET
VR207 R PEDESTAL
Q207~Q209 BUFFER
BR214(R2141~R2143)
IC209(1/2) DIFFERENTIAL AMP
BR213(R2131~R2136)
IC208(1/2) DIFFERENTIAL AMP
BR209(R2091~R2096)
BR210(R2101~R2108)
BR211(R2111~R2116)
BR212(R2121~R2126)
VR217 OB CORRECTION -SAW
VR218 OB CORRECTION -PARA
VR219 OB OFFSET
VR214 R. TRACKING-3
VR213 R. TRACKING-1
VR212 R. TRACKING-2
VR211 R-H. SAW
VR210 R-H. PARA
VR209 R-V. SAW
VR208 R-V. PARA
VR229 B. TRACKING-3
VR228 B. TRACKING-1
VR227 B. TRACKING-2
VR226 B-H. SAW
VR225 B-H. PARA
VR224 B-V. SAW
VR223 B-V. PARA
IC206
DIFF AMP
BR220(R2201~R2208)
VR230 V. EDGE BALANCE
TP201
TP203
TP204
TP207
TP208
TP209
TP210
TP211
TP213
TP214
WHITE BALANCE DC
LOW LIGHT INDICATOR CONTROL
H. SAW
H. PARA
V. SAW
V. PARA
Hs
Vs
YWV3000EZK2 PROCESS CIRCUIT BOARD

EMATIC DIAGRAM OF PROCESS CIRCUIT BOARD (YWV3000EZK2)


AUTOMATIC IRIS CONTROL (AIC)
HORIZONTAL APERTURE SIGNAL GENERATOR
PAL SIGNAL PROCESSING
PLAYBACK SENSE
AIC DRIVE
AGC CONTROL
AIC DAMPER
+8.8V
+3.3V
YH
YL
Y(EDGE) WHITE SUPPRESS
AIC DRIVER
IC209(½) AIC AMP
VR205 Y GAIN
VR215 AIC SET
IC203
BUFFER
H. APERTURE GENERATOR
AMP
GAIN CONTROL
BUFFER
LOW LEVEL CLIP
HIGH LEVEL CLIP
CLAMP
Hs/BL SEPARATION
BURST/SYNC MIX
PAL OUTPUT
Z204 3.58MHz TRAP
DELAY
F201
Q201 +9V SWITCHING
Q10 AIC START DELAY
Q11, 12 PAL SIGNAL SWITCHING
Q13 PLAYBACK SENSOR
Q14 Vs AMP
IC210
BR202(R2021~R2025)
BR204(R2041~R2043)
CN205
1 (NOT USED)
2 PAL OUT
3 GROUND
TO DEFLECTION CIRCUIT BOARD
+6V
+9V
TRACKING-3
H. APERTURE
Hs/BL
CHROMA
Q207~Q209 BUFFER
CHROMA ENCODING
IC205
CLAMP
R. COLOR REPRODUCTION CORRECTION
B. COLOR REPRODUCTION CORRECTION
MATRIX
GAMMA SELECTION
WHITE SUPPRESS
R. GAMMA CORRECTION
YL GAMMA CORRECTION
B. GAMMA CORRECTION
R. DETECTION
YL DETECTION
B. DETECTION
Hs/BL SEPARATION
R-YL BALANCE MODULATOR
B-YL BALANCE MODULATOR
H. APERTURE SUPPRESS
CHROMA CLIP/SUPPRESS
BR214(R2141~R2143)
BR215(R2151~R2153)
BR216(R2161~R2166)
Q204,Q205 CHROMA AMP
VR216 CHROMA GAIN
WHITE BALANCE DETECTION
Q206 WHITE BALANCE DETECTOR
BR223(R2231~R2234)
VR207 R PEDESTAL
V. EDGE
WHITE BALANCE DC
(R-Y)SC
(B-Y)SC
CN203
1 Vs IN
2 Hs IN
3 PRE BL IN
4 BL IN
5 SYNC IN
6 +7V OUT
7 D,HD IN
8 B.F.P. IN
9 (R-Y)SC IN
10 (B-Y)SC IN
TO SYNC CIRCUIT BOARD
VERTICAL EDGE SIGNAL GENERATOR
IC206
DIFF AMP
DIFF AMP
DIFF AMP
IC208(1/2) DIFFERENTIAL AMP
Y(EDGE)
DL202
T201
Q215, Q216 DETECTOR
Q210 MIX AMP
BR219(R2191~R2196)
Q211~Q214 V. EDGE OUT
BR217(R2171~R2173)
BR221(R2211~R2215)
BR220(R2201~R2208)
VR230 V. EDGE BALANCE
TP213
TP214
PULSE DISTRIBUTION
IC212
Q20 90° PHASE SHIFTER
Q21 BUFFER
BR222(R2221~R2224)
IC207
IC211
VC202 BURST PHASE
Q15,Q16 BUFFER
Q17 BL AMP
Q18 BUFFER
Q19 +5V DC REGULATOR
Hs
5
6
7
8
9
10

CONDUCTOR VIEW OF PROCESS CIRCUIT BOARD (YWV3000EZK2)

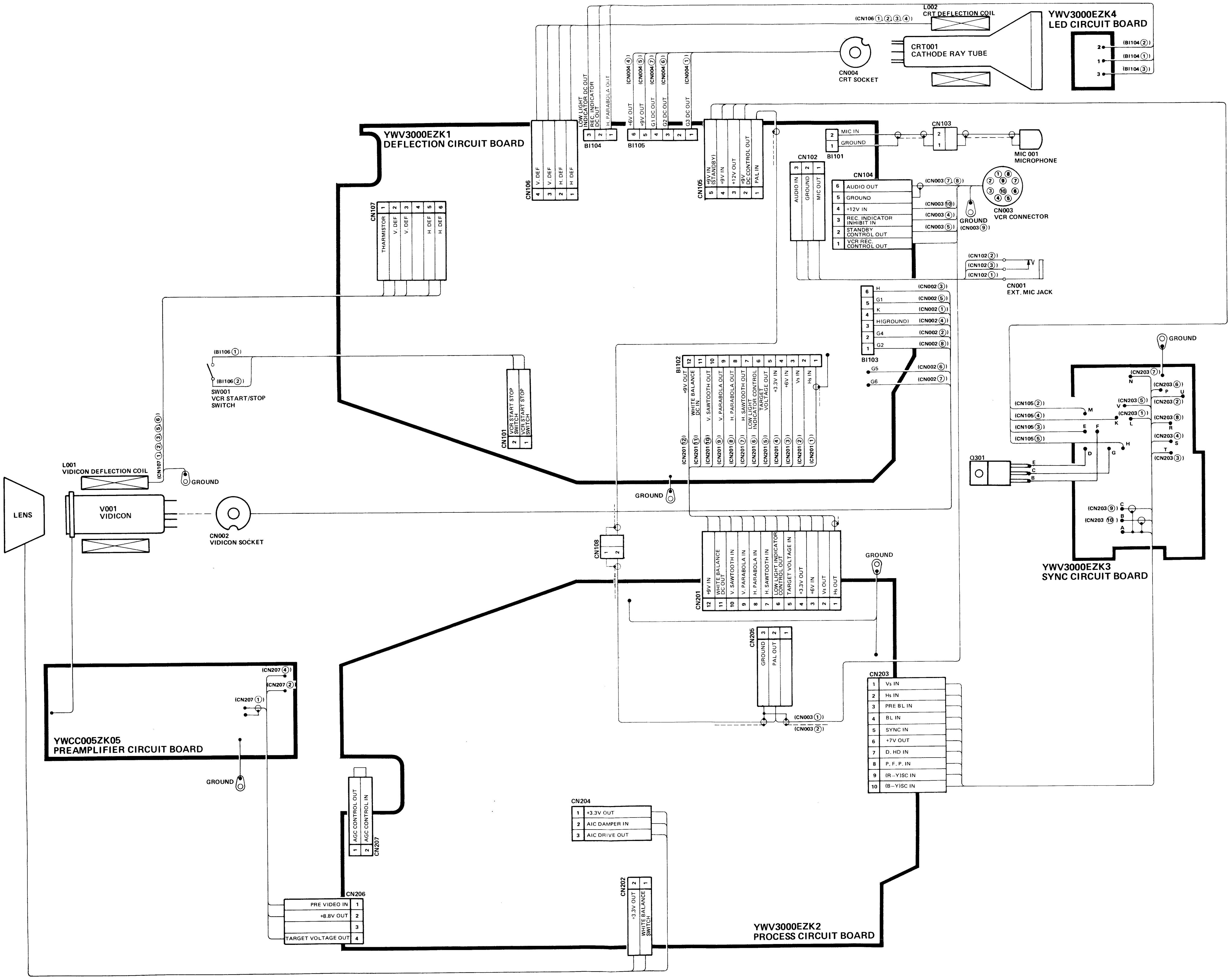

+3.3V OUT
WHITE BALANCE SWITCH
TO AIC LENS
GROUND
PAL OUT
[NOT USED]
TO DEFLECTION CIRCUIT BOARD
CN206
TARGET VOLTAGE OUT
+8.8V OUT
PRE VIDEO IN
TO PREAMPLIFIER CIRCUIT BOARD
CN202
CN205
TO AIC LENS
+3.3V OUT
AIC DAMPER IN
AIC DRIVE OUT
CN204
CN207
VR201 INPUT GAIN
VR222 R GAIN
VR221 B GAIN
VR202 TRACKING-3 SET
VR216 CHROMA GAIN
VR230 V. EDGE BALANCE
VR205 Y GAIN
VR203 Rc/Bc GAIN
VR204 YL PEDESTAL
VR215 AIC SET
VR217 OB CORRECTION-SAW
VR219 OB OFFSET
VR218 OB CORRECTION-PARA
VC202 BURST PHASE
CN203
(B-Y)SC IN
(R-Y)SC IN
B.F.P. IN
D. HD IN
+7V OUT
SYNC IN
BL IN
PRE BL IN
Hs IN
Vs IN
TO SYNC CIRCUIT BOARD
VR214 R-TRACKING-3
VR212 R-TRACKING-2
VR229 B-TRACKING-3
VR227 B-TRACKING-2
VR213 R-TRACKING-1
VR228 B-TRACKING-1
VR211 R-H. SAWTOOTH
VR226 B-H. SAWTOOTH
VR210 R-H. PARABOLA
VR225 B-H. PARABOLA
VR208 R-V. PARABOLA
VR223 B-V. PARABOLA
VR209 R-V. SAWTOOTH
VR224 B-V. SAWTOOTH
VR220 R GAIN PRESET
VR207 R PEDESTAL
VR206 Rc/Bc SEPARATION-2
VC201 Rc/Bc SEPARATION-1
GROUND
CN201
CN201
+9V IN
WHITE BALANCE DC OUT
V. SAWTOOTH IN
V. PARABOLA IN
H. PARABOLA IN
H. SAWTOOTH IN
LOW LIGHT INDICATOR DC OUT
TARGET VOLTAGE IN
+3.3V OUT
+6V IN
Vs OUT
Hs OUT
TO DEFLECTION CIRCUIT BOARD
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9

IC201	AN6015	E2, E3
IC202	AN6012	E3, E4
IC203	AN6022	D6, E6
IC204	AN6031	C5, D5
IC205	AN6045	D5, E5
IC206	AN614	F6
IC207	HD74LS02A	E7
IC208	YNJM4556D	D2
IC209	YHSNJM4558D	D3
IC210	EHMK220L20S	C7, D7
IC211	EHMK727A98S	C7, D7
IC212	EHMK111A97	E7

Q201	2SB793A-RST	D6
Q202	2SC2377-CD	C4
Q203	2SD636-QRS	C5
Q204	2SD636-QRS	F5
Q205	2SC2377-CD	F5
Q206	2SC2377-CD	F5
Q207	2SD636-QRS	E5
Q208	2SD636-QRS	E5
Q209	2SD636-QRS	E5
Q210	2SD636-QRS	F6
Q211	2SC2377-CD	F5
Q212	2SD636-QRS	F5
Q213	2SC2377-CD	F5
Q214	2SA838-CD	F5
Q215	2SC2377-CD	F7
Q216	2SC2377-CD	F7

D201	MA165	D4
D202	MA26W	D7
D203	MA165	F5
D204	MA165	E5
D206	MA165	E4

WIRING DIAGRAM


YWV3000EZK4
LED CIRCUIT BOARD
L002
CRT DEFLECTION COIL
CRT001
CATHODE RAY TUBE
CN004
CRT SOCKET
YWV3000EZK1
DEFLECTION CIRCUIT BOARD
CN106
V. DEF
V. DEF
H. DEF
H. DEF
BI104
BI105
LOW LIGHT INDICATOR DC OUT
REC. INDICATOR DC OUT
H. PARABOLA OUT
+6V OUT
+9V OUT
G1 DC OUT
G2 DC OUT
G3 DC OUT
CN105
+9V IN (STANDBY)
+9V IN
+12V OUT
+9V DC CONTROL OUT
PAL IN
CN103
MIC IN
GROUND
BI101
MIC 001
MICROPHONE
CN102
AUDIO IN
GROUND
MIC OUT
CN104
AUDIO OUT
GROUND
+12V IN
REC. INDICATOR INHIBIT IN
STANDBY CONTROL OUT
VCR REC. CONTROL OUT
CN003
VCR CONNECTOR
GROUND
CN001
EXT. MIC JACK
BI103
H
G1
K
H(GROUND)
G4
G2
G5
G6
CN107
THARMISTOR
V. DEF
V. DEF
H. DEF
H. DEF
SW001
VCR START/STOP SWITCH
CN101
VCR START STOP SWITCH
VCR START STOP SWITCH
BI102
+9V OUT
WHITE BALANCE DC IN
V. SAWTOOTH OUT
V. PARABOLA OUT
H. PARABOLA OUT
H. SAWTOOTH OUT
LOW LIGHT INDICATOR CONTROL
TARGET VOLTAGE OUT
+3.3V IN
+6V IN
Vs IN
Hs IN
L001
VIDICON DEFLECTION COIL
GROUND
LENS
V001
VIDICON
CN002
VIDICON SOCKET
GROUND
CN108
CN201
+9V IN
WHITE BALANCE DC OUT
V. SAWTOOTH IN
V. PARABOLA IN
H. PARABOLA IN
H. SAWTOOTH IN
LOW LIGHT INDICATOR CONTROL OUT
TARGET VOLTAGE IN
+3.3V OUT
+6V IN
Vs OUT
Hs OUT
GROUND
Q301
YWV3000EZK3
SYNC CIRCUIT BOARD
CN205
GROUND
PAL OUT
YWCC005ZK05
PREAMPLIFIER CIRCUIT BOARD
GROUND
CN207
AGC CONTROL OUT
AGC CONTROL IN
CN203
Vs IN
Hs IN
PRE BL IN
BL IN
SYNC IN
+7V OUT
D. HD IN
P. F. P. IN
(R−Y)SC IN
(B−Y)SC IN
CN204
+3.3V OUT
AIC DAMPER IN
AIC DRIVE OUT
CN206
PRE VIDEO IN
+8.8V OUT
TARGET VOLTAGE OUT
CN202
+3.3V OUT
WHITE BALANCE SWITCH
YWV3000EZK2
PROCESS CIRCUIT BOARD

REPLACEMENT PARTS LIST

Vol. 4

Important Notice

1. Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
2. Components identified by * mark are new parts used from this model.
3. This replacement parts list include only changed portion.

ORIGINAL PARTS			NEW PARTS		
SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
MISCELLANEOUS					
CN101-PM	EMCL0207D52V	Connecting Wire Ass'y for CN101 and BI106	CN101-PF	EMCM0212B52	2-Pin Plug Female
CN102-PF	EMCM0312C52V	3-Pin Plug Female	CN102-PF	EMCM0312C55V	3-Pin Plug Female
M053	* YWFAC17XAM4	Shield Plate A for Vidicon Socket	M053	* YWFAC17XAM4A	Shield Plate A for Vidicon Socket
YWV3000EZK1A DEFLECTION CIRCUIT BOARD					
PCB001	*YWV3000EZK1	Printed Circuit Board Ass'y	PCB001	*YWV3000EZK1A	Printed Circuit Board Ass'y
Q111	2SD959-PQ	Transistor	Q111	2SD975	Transistor
Q119	2SD866-PQ	Transistor	Q119	2SD975	Transistor
D110	MA165	Diode	——	——	——
——	——	——	D109	MA165	Diode
——	——	——	C177	ECEA1CK100B	Electrolytic 10μF 16V
L103	ELQ333D008J	Inductor 33mH	L103	YWEF7303MH	Inductor 33mH
——	——	——	CN101-JM	EMCS0252M	2-Pin Jack Male
CN104-JM	EMCS0852M	8-Pin Jack Male	CN104-JM	EMCS0652M	6-Pin Jack Male
CN105-JM	EMCS0452M	4-Pin Jack Male	CN105-JM	EMCS0552M	5-Pin Jack Male
BI102	EMCM1210B60V	Connecting Wire Ass'y for BI102 and CN201	BI102	EMCM1310B63V	Connecting Wire Ass'y for BI102 and CN201
BI103	EMCL0613D62W	6-Pin Connecting Wire Ass'y for BI103 and CN002	BI103	EMCL0613063W	6-Pin Connecting Wire Ass'y for BI103 and CN002
BI106	EMCL0207D52V	Connecting Wire Ass'y for for BI106 and CN101	——	——	——
BI107	EMCM0315B52V	Connecting Wire Ass'y for BI107 and CN205	——	——	——
YWV3000EZK2 PROCESS CIRCUIT BOARD					
——	——	——	F201	YWICP-N10	Fuse 0.4A
YWV3000EZK3A SYNC CIRCUIT BOARD					
PCB003	*YWV3000EZK3	Printed Circuit Board Ass'y	PCB003	*YWV3000EZK3A	Printed Circuit Board Ass'y
CN105-PF	EMCM0418D65	4-Pin Plug Female	CN105-PF	EMCM0518B54X	5-Pin Plug Female
YWCC500XK05 HANDLE GRIP ASSEMBLY					
M061 ⚠	*YWCC500KR05	Handle Grip Cover A	M061 ⚠	*YWCC500KR05A	Handle Grip Cover A
M062 ⚠	*YWCC500KR06	Handle Grip Cover B	M062 ⚠	*YWCC500KR06A	Handle Grip Cover B
——	——	——	M068	*YWCC500KR07	Grip Cap for Handle Grip Cover B

ORDER NO. VKD81070557S8

Service Manual

Colour Video Cameras

WV-3000E/WV-3000N

Supplement—1

- The Deflection Circuit Board (YWV3000EZKI) has been modified to increase arc resistance from Serial No. 140001 and higher.
- Please file this Supplement Service Manual with the Service Manual (AVD-8103-544).

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CONDUCTOR VIEWS

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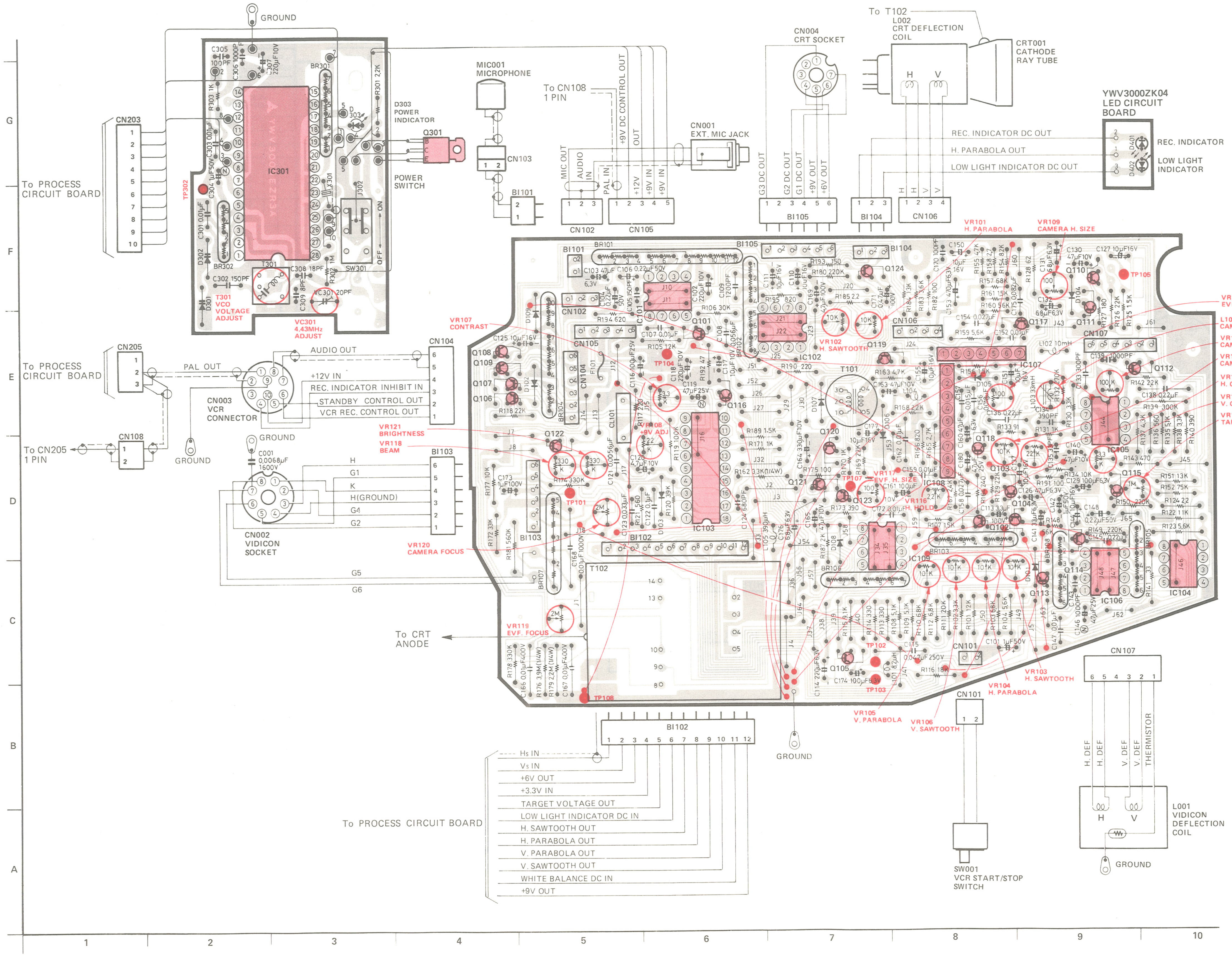
National/Panasonic

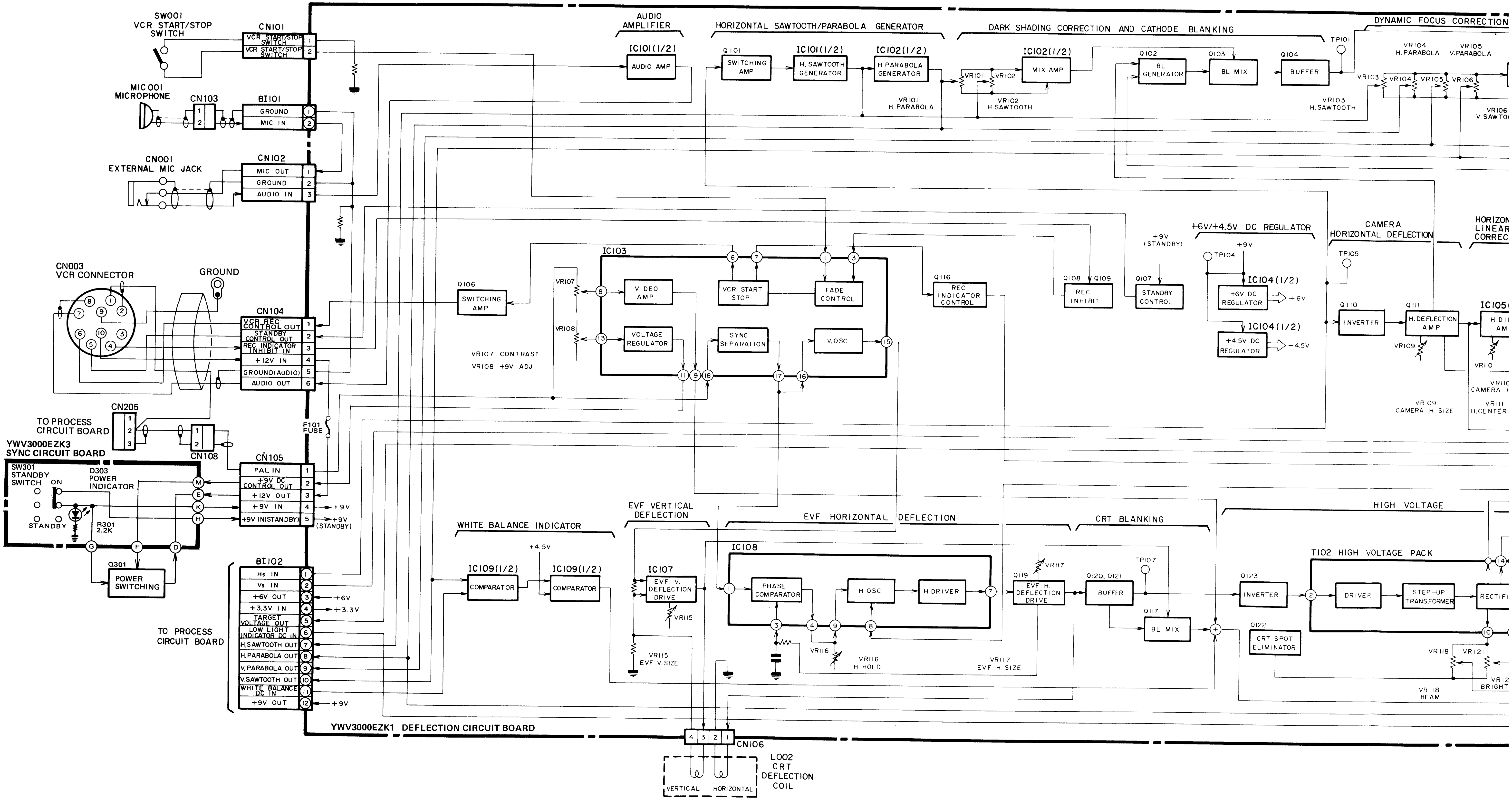
Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

CONDUCTOR VIEW OF DEFLECTION CIRCUIT BOARD (YWV3000EZK1) AND SYNC CIRCUIT BOARD (YWV3000EZK3)

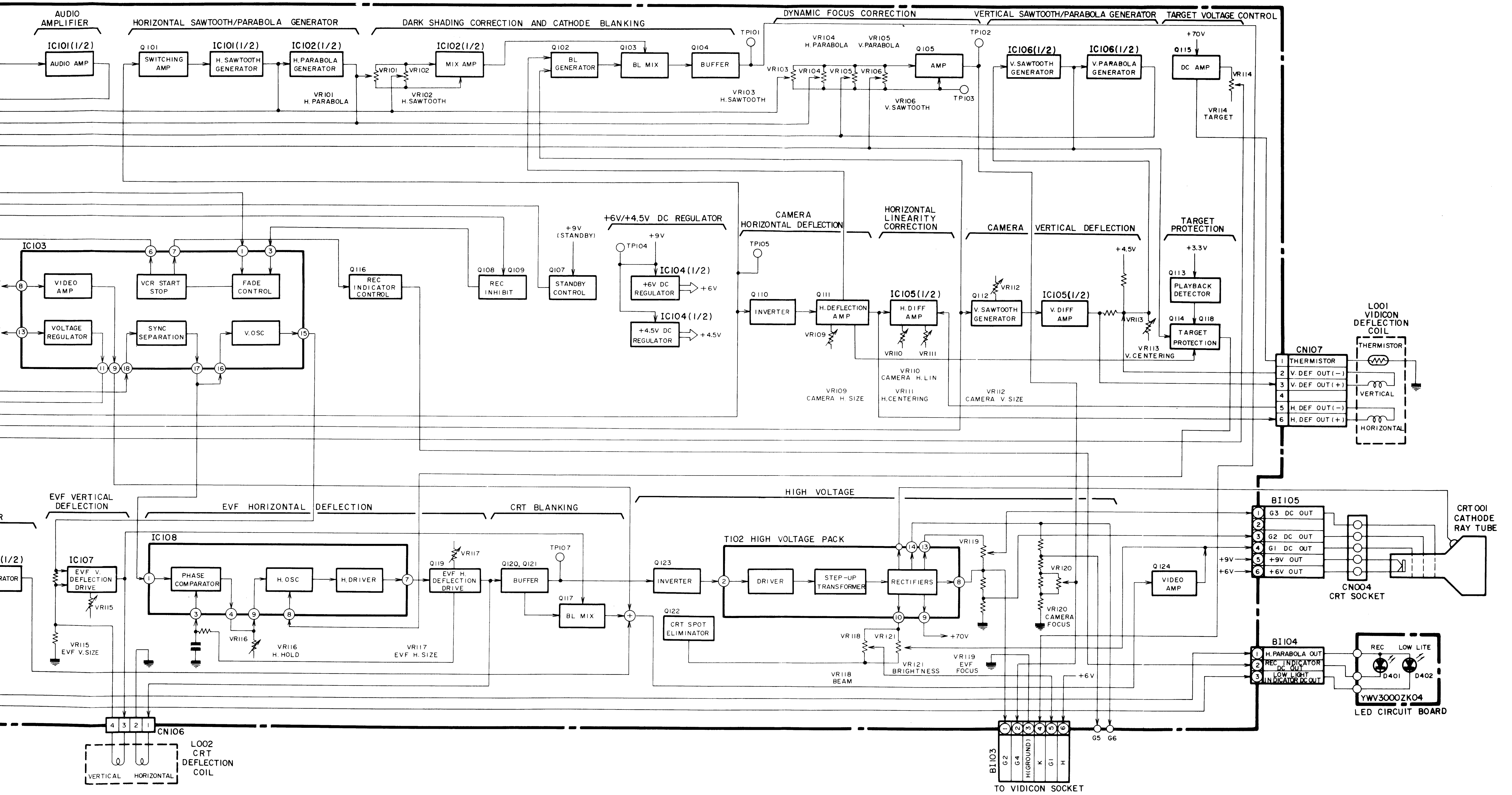
IC101	YHSNJM4558D	F6
IC102	NJM4560D	E7
IC103	AN6055	D6
IC104	NJM4556D	C10
IC105	NJM4556DT	E9
IC106	YHSNJM4558D	C9
IC107	AN374P	E8
IC108	AN5750	D8, E8
IC109	AN6914	D7
IC301	YWHD44007A	F3, G3
Q101	2SC2377-CD	E6
Q102	2SC2377-CD	D8
Q103	2SA749A	D8
Q104	2SA749A	D9
Q105	2SC1980-RST	C7
Q106	2SD636-QRS	E4
Q107	2SB641-QRS	E4
Q108	2SD636-QRS	E4
Q109	2SB641-QRS	E4
Q110	2SD638-QR	F9
Q111	2SD975	E9
Q112	2SD638-QR	E9
Q113	2SB641-QRS	C9
Q114	2SD636-QRS	D9
Q115	2SC1473NCQRS	D9
Q116	2SD661-TU	E6
Q117	2SB641-QRS	E9
Q118	2SD636-QRS	D8
Q119	2SD975	E7
Q120	2SC2377-CD	D7
Q121	2SA838-CD	D7
Q122	2SA749A	D5
Q123	2SD638-QR	D7
Q124	2SC1980-RST	F7
Q301	2SA1061-P	G4
D101	MA165	C9
D102	MA165	E5
D103	MA165	D6
D104	MA165	F9
D105	MA165	E8
D106	YUDRU2M	D7
D107	MA165	E7
D108	MA165	D7
D109	MA165	E5
D301	YUD1S2688	F2
D302	YUD1S2688	F2
D303	LN217RP	G3
D401	LN23SRP-D	G10
D402	LN43SYP	G10


GROUND
CN203
To PROCESS CIRCUIT BOARD
IC301
TP302
BR301
BR302
T301 VCO VOLTAGE ADJUST
VC301 4.43MHz ADJUST
SW301
ON
OFF
D303 POWER INDICATOR
Q301
POWER SWITCH
MIC001 MICROPHONE
CN103
BI101
To CN108 1 PIN
CN001 EXT. MIC JACK
MIC OUT
AUDIO IN
PAL IN
+12V
+9V IN
+9V IN
+9V DC CONTROL OUT
OUT
CN102
CN105
CN004 CRT SOCKET
To T102
L002 CRT DEFLECTION COIL
CRT001 CATHODE RAY TUBE
G3 DC OUT
G2 DC OUT
G1 DC OUT
+9V OUT
+6V OUT
BI105
BI104
CN106
REC. INDICATOR DC OUT
H. PARABOLA OUT
LOW LIGHT INDICATOR DC OUT
YWV3000ZK04 LED CIRCUIT BOARD
REC. INDICATOR
LOW LIGHT INDICATOR
VR101 H. PARABOLA
VR109 CAMERA H. SIZE
TP105
VR115 EVF. V. SIZE
L103 CAMERA H. LIN-1
VR112 CAMERA V. SIZE
VR110 CAMERA H. LIN-2
VR111 H. CENTERING
VR113 V. CENTERING
VR114 TARGET
VR107 CONTRAST
VR102 H. SAWTOOTH
TP104
VR108 +9V ADJ
CN205
To PROCESS CIRCUIT BOARD
PAL OUT
AUDIO OUT
+12V IN
REC. INDICATOR INHIBIT IN
STANDBY CONTROL OUT
VCR REC. CONTROL OUT
CN104
CN003 VCR CONNECTOR
GROUND
CN108
To CN205 1 PIN
GROUND
C001 0.0068µF 1600V
VR121 BRIGHTNESS
VR118 BEAM
BI103
H
G1
K
H(GROUND)
G4
G2
CN002 VIDICON SOCKET
G5
G6
VR120 CAMERA FOCUS
TP101
TP107
VR117 EVF. H. SIZE
VR116 H. HOLD
IC101
IC102
IC103
IC104
IC105
IC106
IC107
IC108
IC109
T101
T102
VR119 EVF. FOCUS
To CRT ANODE
TP108
TP102
TP103
VR105 V. PARABOLA
VR106 V. SAWTOOTH
VR104 H. PARABOLA
VR103 H. SAWTOOTH
CN101
CN107
BI102
GROUND
Hs IN
Vs IN
+6V OUT
+3.3V IN
TARGET VOLTAGE OUT
LOW LIGHT INDICATOR DC IN
H. SAWTOOTH OUT
H. PARABOLA OUT
V. PARABOLA OUT
V. SAWTOOTH OUT
WHITE BALANCE DC IN
+9V OUT
To PROCESS CIRCUIT BOARD
SW001 VCR START/STOP SWITCH
H. DEF
H. DEF
V. DEF
V. DEF
THERMISTOR
L001 VIDICON DEFLECTION COIL
GROUND
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10

BLOCK DIAGRAM OF DEFLECTION CIRCUIT BOARD (YWV3000EZK1)

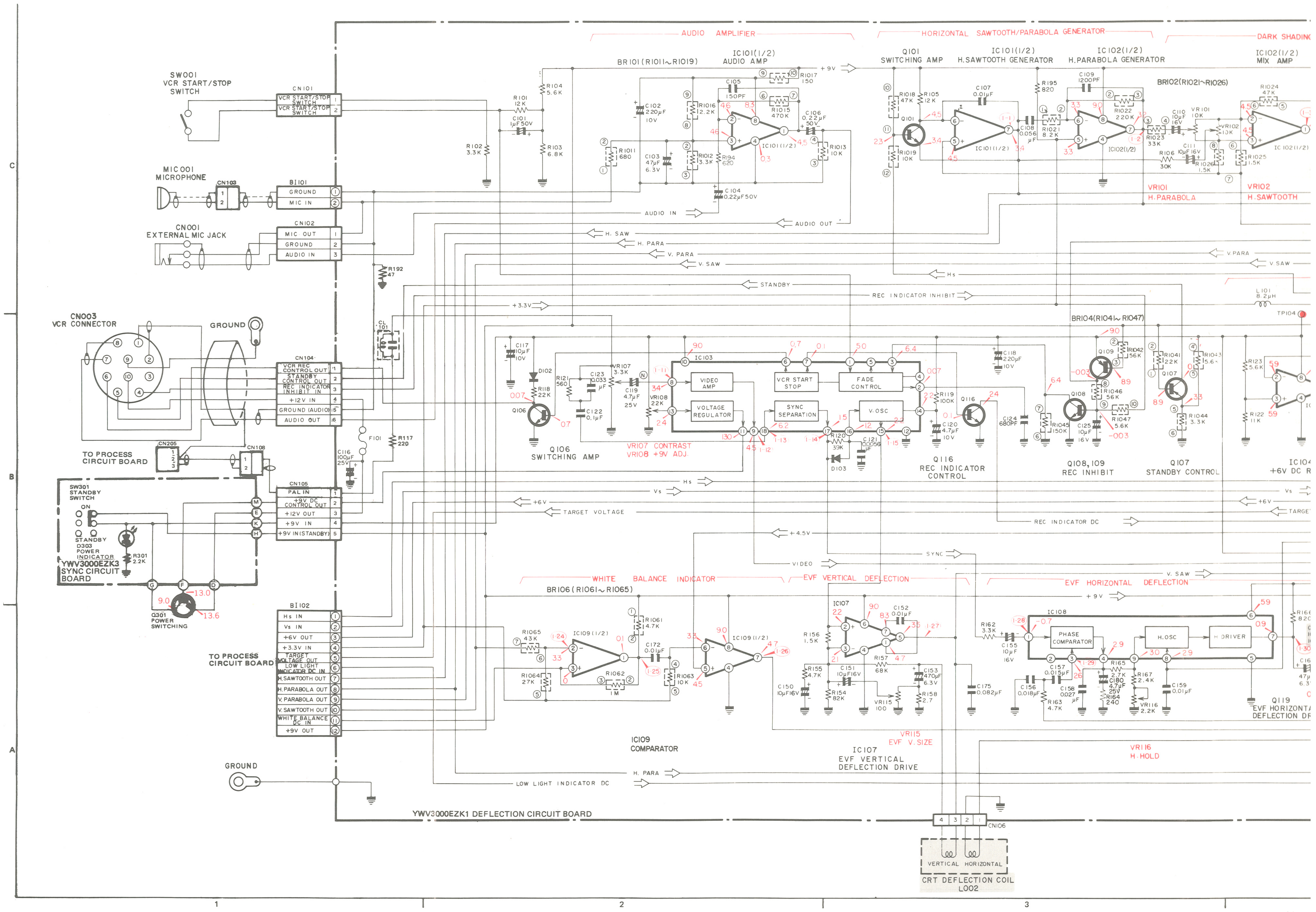

SW001
VCR START/STOP SWITCH
CN101
VCR START/STOP SWITCH
VCR START/STOP SWITCH
MIC001 MICROPHONE
CN103
BI101
GROUND
MIC IN
CN001 EXTERNAL MIC JACK
CN102
MIC OUT
GROUND
AUDIO IN
CN003 VCR CONNECTOR
GROUND
CN104
VCR REC CONTROL OUT
STANDBY CONTROL OUT
REC INDICATOR INHIBIT IN
+12V IN
GROUND(AUDIO)
AUDIO OUT
CN205
TO PROCESS CIRCUIT BOARD
CN108
F101 FUSE
YWV3000EZK3 SYNC CIRCUIT BOARD
SW301 STANDBY SWITCH
ON
STANDBY
D303 POWER INDICATOR
R301 2.2K
Q301 POWER SWITCHING
CN105
PAL IN
+9V DC CONTROL OUT
+12V OUT
+9V IN
+9V IN(STANDBY)
+9V
+9V (STANDBY)
BI102
Hs IN
Vs IN
+6V OUT
+3.3V IN
TARGET VOLTAGE OUT
LOW LIGHT INDICATOR DC IN
H.SAWTOOTH OUT
H.PARABOLA OUT
V.PARABOLA OUT
V.SAWTOOTH OUT
WHITE BALANCE DC IN
+9V OUT
+6V
+3.3V
+9V
TO PROCESS CIRCUIT BOARD
YWV3000EZK1 DEFLECTION CIRCUIT BOARD
AUDIO AMPLIFIER
IC101(1/2)
AUDIO AMP
HORIZONTAL SAWTOOTH/PARABOLA GENERATOR
Q101
SWITCHING AMP
IC101(1/2)
H. SAWTOOTH GENERATOR
IC102(1/2)
H.PARABOLA GENERATOR
VR101 H. PARABOLA
DARK SHADING CORRECTION AND CATHODE BLANKING
IC102(1/2)
MIX AMP
VR101
VR102
VR102 H.SAWTOOTH
Q102
BL GENERATOR
Q103
BL MIX
Q104
BUFFER
VR103 H.SAWTOOTH
TP101
DYNAMIC FOCUS CORRECTION
VR104 H.PARABOLA
VR105 V.PARABOLA
VR103
VR104
VR105
VR106
VR106 V.SAWTO
IC103
Q106
SWITCHING AMP
VR107
VR108
VIDEO AMP
VOLTAGE REGULATOR
VCR START STOP
SYNC SEPARATION
FADE CONTROL
V.OSC
VR107 CONTRAST
VR108 +9V ADJ
Q116
REC INDICATOR CONTROL
Q108
Q109
REC INHIBIT
+9V (STANDBY)
Q107
STANDBY CONTROL
+6V/+4.5V DC REGULATOR
+9V
TP104
IC104(1/2)
+6V DC REGULATOR
+6V
IC104(1/2)
+4.5V DC REGULATOR
+4.5V
CAMERA HORIZONTAL DEFLECTION
TP105
Q110
INVERTER
Q111
H. DEFLECTION AMP
VR109
VR109 CAMERA H. SIZE
HORIZON LINEAR CORREC
IC105
H. DI AM
VR110
VR110 CAMERA H
VR111 H.CENTER
WHITE BALANCE INDICATOR
+4.5V
IC109(1/2)
COMPARATOR
IC109(1/2)
COMPARATOR
EVF VERTICAL DEFLECTION
IC107
EVF V. DEFLECTION DRIVE
VR115
VR115 EVF V. SIZE
EVF HORIZONTAL DEFLECTION
IC108
PHASE COMPARATOR
H. OSC
H. DRIVER
VR116
VR116 H. HOLD
Q119
VR117
EVF H. DEFLECTION DRIVE
VR117 EVF H. SIZE
CRT BLANKING
Q120, Q121
BUFFER
TP107
Q117
BL MIX
HIGH VOLTAGE
Q123
INVERTER
Q122
CRT SPOT ELIMINATOR
T102 HIGH VOLTAGE PACK
DRIVER
STEP-UP TRANSFORMER
RECTIFI
VR118
VR121
VR118 BEAM
VR12 BRIGHT
CN106
L002 CRT DEFLECTION COIL
VERTICAL
HORIZONTAL

BLOCK DIAGRAM OF DEFLECTION CIRCUIT BOARD (YWV3000EZK1)


AUDIO AMPLIFIER
IC101(1/2)
AUDIO AMP
HORIZONTAL SAWTOOTH/PARABOLA GENERATOR
Q101
SWITCHING AMP
IC101(1/2)
H. SAWTOOTH GENERATOR
IC102(1/2)
H. PARABOLA GENERATOR
VR101 H. PARABOLA
DARK SHADING CORRECTION AND CATHODE BLANKING
VR101
VR102
VR102 H. SAWTOOTH
IC102(1/2)
MIX AMP
Q102
BL GENERATOR
Q103
BL MIX
Q104
BUFFER
TP101
VR103 H. SAWTOOTH
DYNAMIC FOCUS CORRECTION
VR104 H. PARABOLA
VR105 V. PARABOLA
VR103
VR104
VR105
VR106
Q105
AMP
TP102
TP103
VR106 V. SAWTOOTH
VERTICAL SAWTOOTH/PARABOLA GENERATOR
IC106(1/2)
V. SAWTOOTH GENERATOR
IC106(1/2)
V. PARABOLA GENERATOR
TARGET VOLTAGE CONTROL
+70V
Q115
DC AMP
VR114
VR114 TARGET
IC103
VIDEO AMP
VCR START STOP
FADE CONTROL
VOLTAGE REGULATOR
SYNC SEPARATION
V. OSC
Q116
REC INDICATOR CONTROL
Q108 Q109
REC INHIBIT
+9V (STANDBY)
Q107
STANDBY CONTROL
+6V/+4.5V DC REGULATOR
+9V
TP104
IC104(1/2)
+6V DC REGULATOR
+6V
IC104(1/2)
+4.5V DC REGULATOR
+4.5V
CAMERA HORIZONTAL DEFLECTION
TP105
Q110
INVERTER
Q111
H. DEFLECTION AMP
VR109
VR109 CAMERA H SIZE
HORIZONTAL LINEARITY CORRECTION
IC105(1/2)
H. DIFF AMP
VR110
VR111
VR110 CAMERA H. LIN
VR111 H. CENTERING
CAMERA
VERTICAL DEFLECTION
Q112
VR112
V. SAWTOOTH GENERATOR
IC105(1/2)
V. DIFF AMP
+4.5V
VR113
VR113 V. CENTERING
VR112 CAMERA V SIZE
TARGET PROTECTION
+3.3V
Q113
PLAYBACK DETECTOR
Q114 Q118
TARGET PROTECTION
CN107
1 THERMISTOR
2 V. DEF OUT(−)
3 V. DEF OUT(+)
4
5 H. DEF OUT(−)
6 H. DEF OUT(+)
L001 VIDICON DEFLECTION COIL
THERMISTOR
VERTICAL
HORIZONTAL
EVF VERTICAL DEFLECTION
IC107
EVF V. DEFLECTION DRIVE
VR115
VR115 EVF V. SIZE
(1/2)
RATOR
EVF HORIZONTAL DEFLECTION
IC108
PHASE COMPARATOR
H. OSC
H. DRIVER
VR116
VR116 H. HOLD
Q119
VR117
EVF H. DEFLECTION DRIVE
VR117 EVF H. SIZE
CRT BLANKING
Q120, Q121
BUFFER
TP107
Q117
BL MIX
HIGH VOLTAGE
Q123
INVERTER
T102 HIGH VOLTAGE PACK
DRIVER
STEP-UP TRANSFORMER
RECTIFIERS
Q122
CRT SPOT ELIMINATOR
VR118
VR121
VR118 BEAM
VR121 BRIGHTNESS
+70V
VR119
VR119 EVF FOCUS
VR120
VR120 CAMERA FOCUS
+6V
Q124
VIDEO AMP
+9V
+6V
B1105
1 G3 DC OUT
2
3 G2 DC OUT
4 G1 DC OUT
5 +9V OUT
6 +6V OUT
CN004 CRT SOCKET
CRT001 CATHODE RAY TUBE
B1104
1 H. PARABOLA OUT
2 REC INDICATOR DC OUT
3 LOW LIGHT INDICATOR DC OUT
REC
LOW LITE
D401
D402
YWV3000ZK04
LED CIRCUIT BOARD
CN106
4 3 2 1
L002 CRT DEFLECTION COIL
VERTICAL
HORIZONTAL
B1103
1 G2
2 G4
3 H(GROUND)
4 K
5 G1
6 H
G5
G6
TO VIDICON SOCKET

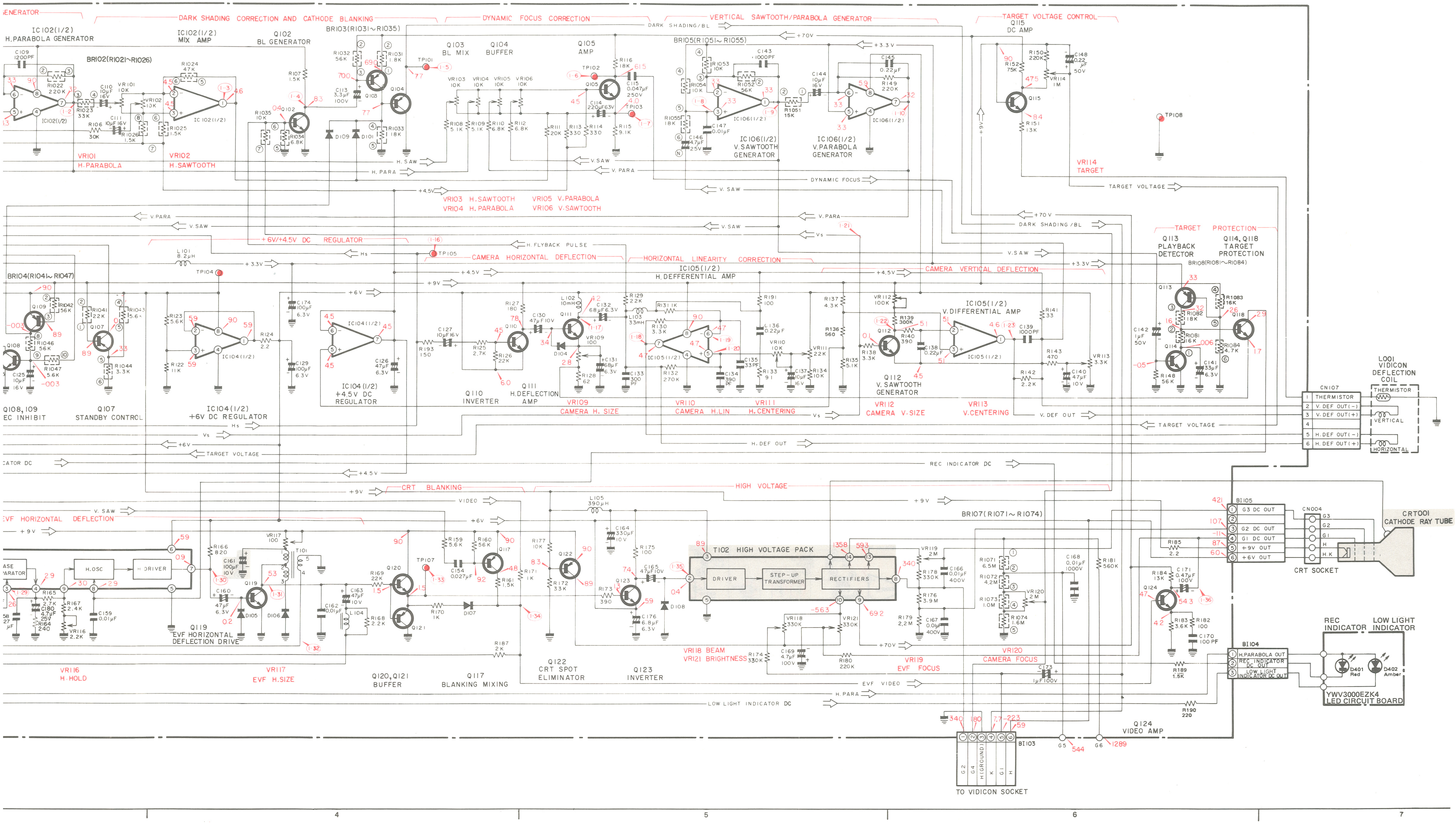
SCHEMATIC DIAGRAM OF DEFLECTION C

IC101	YHSNJM4558D	C2, C3
IC102	NJM4560D	C3, C4
IC103	AN6055	B2, B3
IC104	NJM4556D	B4
IC105	NJM4556DT	B5, B6
IC106	YHSNJM4558D	C5
IC107	AN374P	A3
IC108	AN5750	A3, A4
IC109	AN6914	A2
Q101	2SC2377-CD	C3
Q102	2SC2377-CD	C4
Q103	2SA749A	C4
Q104	2SA749A	C4
Q105	2SC1980-RST	C5
Q106	2SD636-QRS	B2
Q107	2SB641-QRS	B3
Q108	2SD636-QRS	B3
Q109	2SB641-QRS	B3
Q110	2SD638-QR	B4
Q111	2SD975	B5
Q112	2SD638-QR	B6
Q113	2SB641-QRS	B6
Q114	2SD636-QRS	B6
Q115	2SC1473NCQRS	C6
Q116	2SD661-TU	B3
Q117	2SB641-QRS	A4
Q118	2SD636-QRS	B6
Q119	2SD975	A4
Q120	2SC2377-CD	A4
Q121	2SA838-CD	A4
Q122	2SA749A	A5
Q123	2SD638-QR	A5
Q124	2SC1980-RST	A6
Q301	2SA1061-P	A1
D101	MA165	C4
D102	MA165	B2
D103	MA165	B3
D104	MA165	B5
D105	MA165	A4
D106	YUDRU2M	A4
D107	MA165	A4
D108	MA165	A5
D110	MA165	C4
D303	LN217RP	B1
D401	LN23SRP-D	A7
D402	LN43SYP	A7



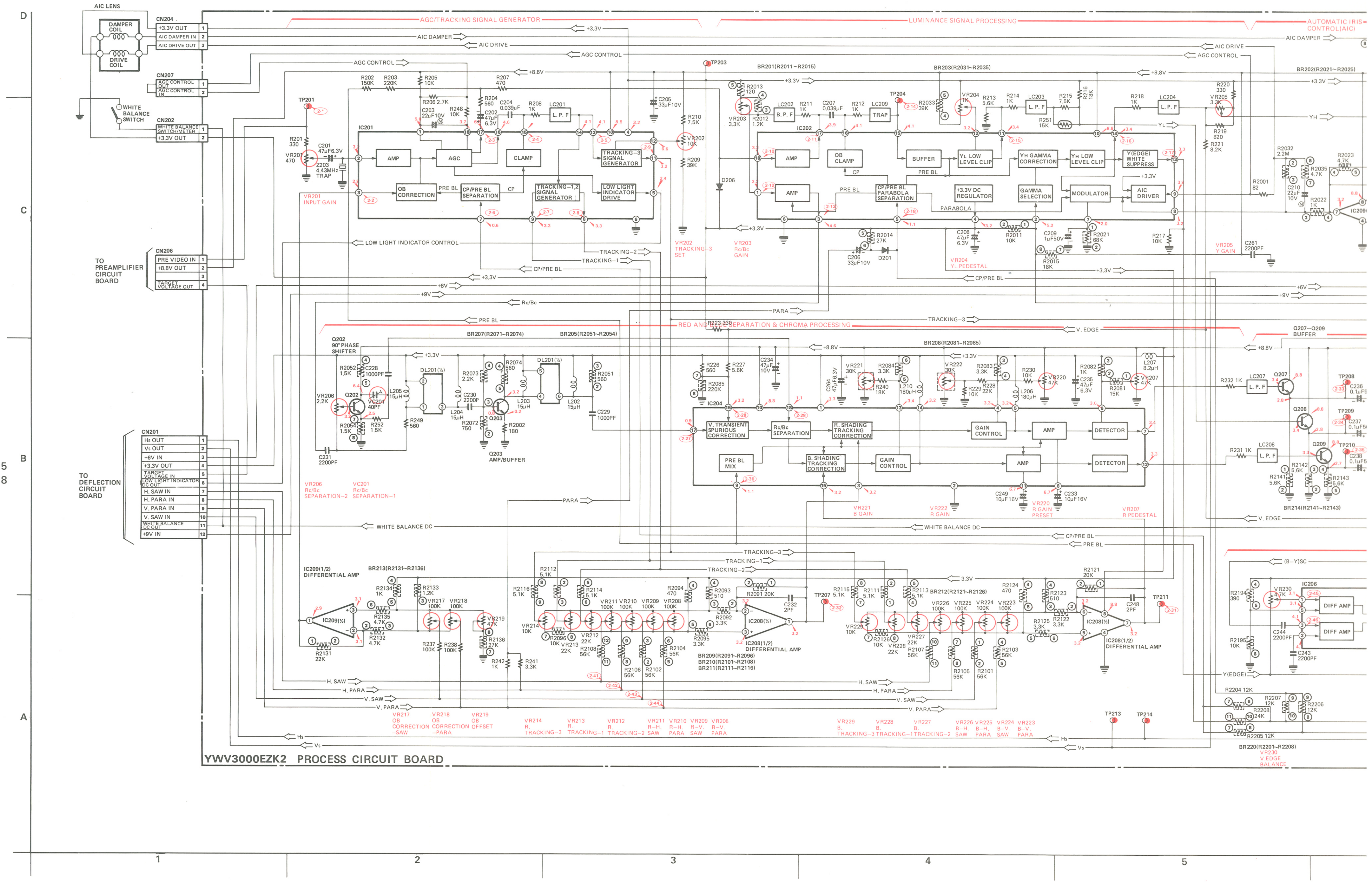
C
B
A
1
2
3
SW001
VCR START/STOP SWITCH
CN101
VCR START/STOP SWITCH
MIC001 MICROPHONE
CN103
B1101
GROUND
MIC IN
CN001
EXTERNAL MIC JACK
CN102
MIC OUT
GROUND
AUDIO IN
CN003
VCR CONNECTOR
GROUND
CN104
VCR REC CONTROL OUT
STANDBY CONTROL OUT
REC INDICATOR INHIBIT IN
+12V IN
GROUND (AUDIO)
AUDIO OUT
TO PROCESS CIRCUIT BOARD
CN205
CN108
SW301 STANDBY SWITCH
ON
STANDBY
D303 POWER INDICATOR
R301 2.2K
YWV3000EZK3 SYNC CIRCUIT BOARD
CN105
PAL IN
+9V DC CONTROL OUT
+12V OUT
+9V IN
+9V IN(STANDBY)
Q301 POWER SWITCHING
B1102
Hs IN
Vs IN
+6V OUT
+3.3V IN
TARGET VOLTAGE OUT
LOW LIGHT INDICATOR DC IN
H.SAWTOOTH OUT
H.PARABOLA OUT
V.PARABOLA OUT
V.SAWTOOTH OUT
WHITE BALANCE DC IN
+9V OUT
TO PROCESS CIRCUIT BOARD
GROUND
AUDIO AMPLIFIER
BR101 (R1011~R1019)
IC101(1/2) AUDIO AMP
HORIZONTAL SAWTOOTH/PARABOLA GENERATOR
Q101 SWITCHING AMP
IC101(1/2) H.SAWTOOTH GENERATOR
IC102(1/2) H.PARABOLA GENERATOR
BR102(R1021~R1026)
DARK SHADING
IC102(1/2) MIX AMP
VR101 H.PARABOLA
VR102 H.SAWTOOTH
AUDIO IN
AUDIO OUT
H. SAW
H. PARA
V. PARA
V. SAW
Hs
STANDBY
REC INDICATOR INHIBIT
+3.3V
IC103
VIDEO AMP
VOLTAGE REGULATOR
VCR START STOP
SYNC SEPARATION
FADE CONTROL
V.OSC
Q106 SWITCHING AMP
VR107 CONTRAST
VR108 +9V ADJ.
Q116 REC INDICATOR CONTROL
BR104(R1041~R1047)
Q108, 109 REC INHIBIT
Q107 STANDBY CONTROL
IC104 +6V DC R
TP104
Vs
+6V
TARGET VOLTAGE
REC INDICATOR DC
+4.5V
SYNC
VIDEO
WHITE BALANCE INDICATOR
BR106 (R1061~R1065)
IC109(1/2)
IC109 COMPARATOR
EVF VERTICAL DEFLECTION
IC107 EVF VERTICAL DEFLECTION DRIVE
VR115 EVF V. SIZE
EVF HORIZONTAL DEFLECTION
IC108
PHASE COMPARATOR
H.OSC
H DRIVER
VR116 H.HOLD
Q119 EVF HORIZONTA DEFLECTION DR
H. PARA
LOW LIGHT INDICATOR DC
YWV3000EZK1 DEFLECTION CIRCUIT BOARD
CN106
VERTICAL
HORIZONTAL
CRT DEFLECTION COIL L002

AM OF DEFLECTION CIRCUIT BOARD (YWV3000EZK1)


GENERATOR
IC102(1/2) H.PARABOLA GENERATOR
BR102(R1021~R1026)
DARK SHADING CORRECTION AND CATHODE BLANKING
IC102(1/2) MIX AMP
Q102 BL GENERATOR
BR103(R1031~R1035)
Q103 BL MIX
Q104 BUFFER
Q105 AMP
TP101
TP102
TP103
DYNAMIC FOCUS CORRECTION
VERTICAL SAWTOOTH/PARABOLA GENERATOR
BR105(R1051~R1055)
IC106(1/2) V.SAWTOOTH GENERATOR
IC106(1/2) V.PARABOLA GENERATOR
TARGET VOLTAGE CONTROL
Q115 DC AMP
TP108
VR114 TARGET
VR101 H.PARABOLA
VR102 H.SAWTOOTH
VR103 H.SAWTOOTH
VR104 H.PARABOLA
VR105 V.PARABOLA
VR106 V.SAWTOOTH
H. SAW
H. PARA
V. SAW
V. PARA
DARK SHADING/BL
DYNAMIC FOCUS
TARGET VOLTAGE
+70V
+3.3V
+4.5V
+6V
+9V
+6V/+4.5V DC REGULATOR
L101 8.2μH
TP104
TP105
H. FLYBACK PULSE
Hs
Vs
CAMERA HORIZONTAL DEFLECTION
HORIZONTAL LINEARITY CORRECTION
IC105(1/2) H. DEFFERENTIAL AMP
CAMERA VERTICAL DEFLECTION
IC105(1/2) V.DIFFERENTIAL AMP
TARGET PROTECTION
Q113 PLAYBACK DETECTOR
Q114, Q118 TARGET PROTECTION
BR108(R1081~R1084)
BR104(R1041~R1047)
Q108, Q109 REC INHIBIT
Q107 STANDBY CONTROL
IC104(1/2) +6V DC REGULATOR
IC104(1/2) +4.5V DC REGULATOR
Q110 INVERTER
Q111 H.DEFLECTION AMP
VR109 CAMERA H. SIZE
VR110 CAMERA H.LIN
VR111 H.CENTERING
Q112 V. SAWTOOTH GENERATOR
VR112 CAMERA V. SIZE
VR113 V.CENTERING
V. DEF OUT
H. DEF OUT
REC INDICATOR DC
L001 VIDICON DEFLECTION COIL
CN107
THERMISTOR
V. DEF OUT(-)
V. DEF OUT(+)
H. DEF OUT(-)
H. DEF OUT(+)
VERTICAL
HORIZONTAL
CRT BLANKING
HIGH VOLTAGE
VIDEO
EVF HORIZONTAL DEFLECTION
H.OSC
H.DRIVER
Q119 EVF HORIZONTAL DEFLECTION DRIVE
VR116 H-HOLD
VR117 EVF H.SIZE
T101
TP107
Q120, Q121 BUFFER
Q117 BLANKING MIXING
Q122 CRT SPOT ELIMINATOR
Q123 INVERTER
L105 390μH
T102 HIGH VOLTAGE PACK
DRIVER
STEP-UP TRANSFORMER
RECTIFIERS
VR118 BEAM
VR121 BRIGHTNESS
VR119 EVF FOCUS
VR120 CAMERA FOCUS
BR107(R1071~R1074)
EVF VIDEO
H. PARA
LOW LIGHT INDICATOR DC
Q124 VIDEO AMP
B1105
G3 DC OUT
G2 DC OUT
G1 DC OUT
+9V OUT
+6V OUT
CN004
CRT001 CATHODE RAY TUBE
CRT SOCKET
B1104
H.PARABOLA OUT
REC INDICATOR DC OUT
LOW LIGHT INDICATOR DC OUT
REC INDICATOR
LOW LIGHT INDICATOR
D401 Red
D402 Amber
YWV3000EZK4 LED CIRCUIT BOARD
B1103
G2
G4
H(GROUND)
K
G1
H
G5
G6
TO VIDICON SOCKET
4
5
6
7

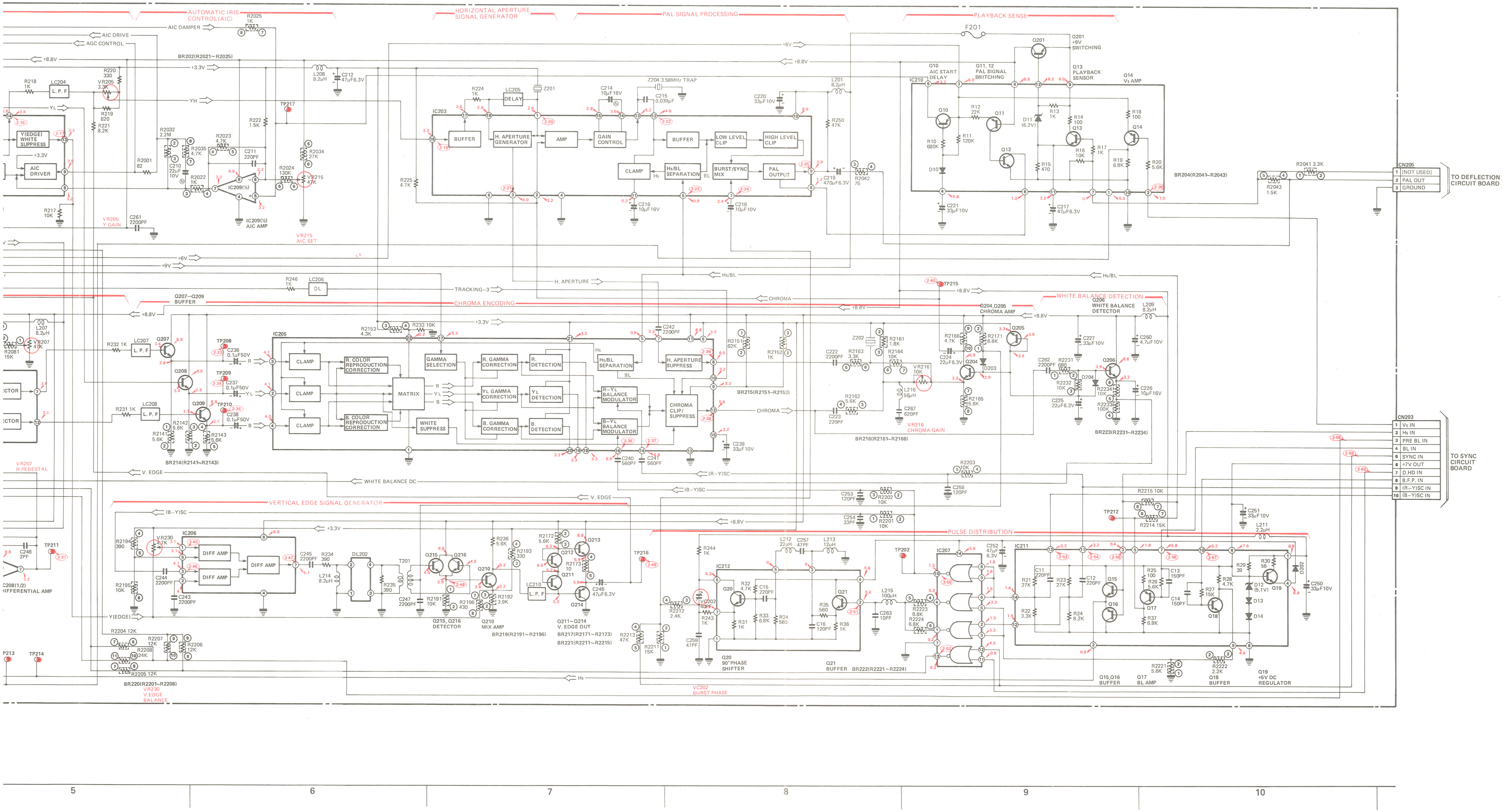
SCHEMATIC DIAGRAM OF F

IC201	AN6015	C2, C3
IC202	AN6012	C4, C5
IC203	AN6022	C7, C8
IC204	AN6031	B3, B4, B5
IC205	AN6045	B6, B7, B8
IC206	AN614	A6
IC207	HD74LS02A	A9
IC208	YNJM4556D	A3, A5
IC209	YHSNJM4558D	A2, C6
IC210	EHMK220L20S	C9, C10
IC211	EHMK727A98S	A9, A10
IC212	EHMK111A97	A8
Q201	2SB793A-RST	D9
Q202	2SC2377-CD	B2
Q203	2SD636-QRS	B2
Q204	2SD636-QRS	B9
Q205	2SC2377-CD	B9
Q206	2SC2377-CD	B9
Q207	2SD636-QRS	B5
Q208	2SD636-QRS	B6
Q209	2SD636-QRS	B6
Q210	2SD636-QRS	A7
Q211	2SC2377-CD	A7
Q212	2SD636-QRS	A7
Q213	2SC2377-CD	A7
Q214	2SA838-CD	A7
Q215	2SC2377-CD	A7
Q216	2SC2377-CD	A7
D201	MA165	C4
D202	MA26W	A10
D203	MA165	B9
D204	MA165	B9
D206	MA165	C3

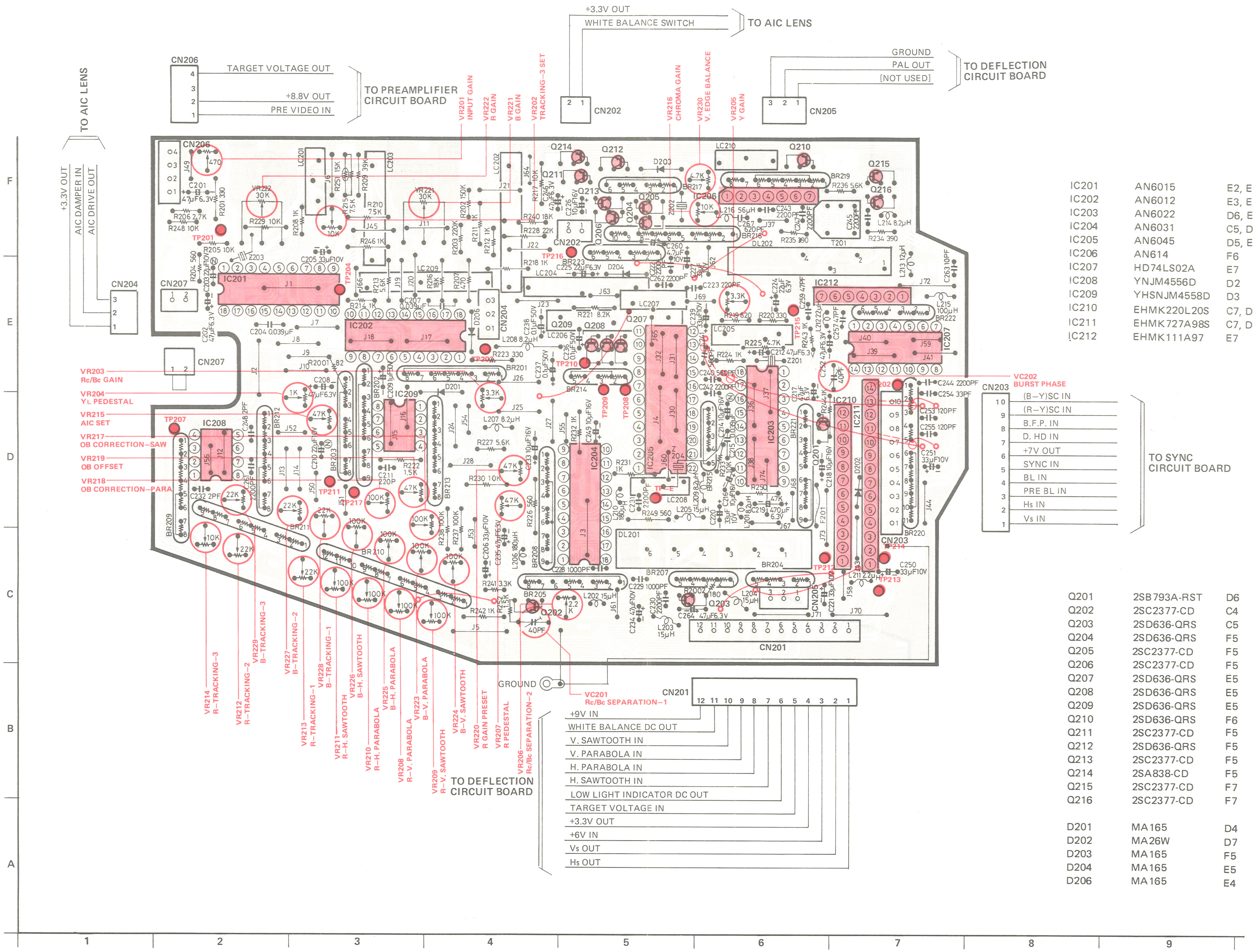


AIC LENS
DAMPER COIL
DRIVE COIL
CN204
+3.3V OUT
AIC DAMPER IN
AIC DRIVE OUT
CN207
AGC CONTROL OUT
AGC CONTROL IN
WHITE BALANCE SWITCH
CN202
WHITE BALANCE SWITCH/METER
+3.3V OUT
TO PREAMPLIFIER CIRCUIT BOARD
CN206
PRE VIDEO IN
+8.8V OUT
TARGET VOLTAGE OUT
TO DEFLECTION CIRCUIT BOARD
CN201
Hs OUT
Vs OUT
+6V IN
+3.3V OUT
TARGET VOLTAGE IN
LOW LIGHT INDICATOR DC OUT
H. SAW IN
H. PARA IN
V. PARA IN
V. SAW IN
WHITE BALANCE DC OUT
+9V IN
AGC/TRACKING SIGNAL GENERATOR
LUMINANCE SIGNAL PROCESSING
AUTOMATIC IRIS CONTROL(AIC)
RED AND BLUE SEPARATION & CHROMA PROCESSING
IC201
AMP
AGC
CLAMP
TRACKING-3 SIGNAL GENERATOR
OB CORRECTION
CP/PRE BL SEPARATION
TRACKING-1,2 SIGNAL GENERATOR
LOW LIGHT INDICATOR DRIVE
IC202
AMP
OB CLAMP
BUFFER
YL LOW LEVEL CLIP
YH GAMMA CORRECTION
YH LOW LEVEL CLIP
Y(EDGE) WHITE SUPPRESS
CP/PRE BL PARABOLA SEPARATION
+3.3V DC REGULATOR
GAMMA SELECTION
MODULATOR
AIC DRIVER
IC204
V. TRANSIENT SPURIOUS CORRECTION
Rc/Bc SEPARATION
R. SHADING TRACKING CORRECTION
GAIN CONTROL
DETECTOR
PRE BL MIX
B. SHADING TRACKING CORRECTION
Q202 90° PHASE SHIFTER
Q203 AMP/BUFFER
Q207~Q209 BUFFER
IC209(1/2) DIFFERENTIAL AMP
IC208(1/2) DIFFERENTIAL AMP
IC206
DIFF AMP
VR201 INPUT GAIN
VR202 TRACKING-3 SET
VR203 Rc/Bc GAIN
VR204 YL PEDESTAL
VR205 Y GAIN
VR206 Rc/Bc SEPARATION-2
VC201 Rc/Bc SEPARATION-1
VR221 B GAIN
VR222 R GAIN
VR220 R GAIN PRESET
VR207 R PEDESTAL
VR217 OB CORRECTION -SAW
VR218 OB CORRECTION -PARA
VR219 OB OFFSET
VR214 R. TRACKING-3
VR213 R. TRACKING-1
VR212 R. TRACKING-2
VR211 R-H. SAW
VR210 R-H. PARA
VR209 R-V. SAW
VR208 R-V. PARA
VR229 B. TRACKING-3
VR228 B. TRACKING-1
VR227 B. TRACKING-2
VR226 B-H. SAW
VR225 B-H. PARA
VR224 B-V. SAW
VR223 B-V. PARA
VR230 V.EDGE BALANCE
LOW LIGHT INDICATOR CONTROL
WHITE BALANCE DC
TRACKING-1
TRACKING-2
TRACKING-3
CP/PRE BL
PRE BL
PARA
H. SAW
H. PARA
V. SAW
V. PARA
Hs
Vs
V. EDGE
Y(EDGE)
YH
YL
(B-Y)SC
TP201
TP203
TP204
TP207
TP208
TP209
TP210
TP211
TP213
TP214
YWV3000EZK2 PROCESS CIRCUIT BOARD
A
B
C
D
1
2
3
4
5

EMATIC DIAGRAM OF PROCESS CIRCUIT BOARD (YWV3000EZK2)


AUTOMATIC IRIS CONTROL(AIC)
HORIZONTAL APERTURE SIGNAL GENERATOR
PAL SIGNAL PROCESSING
PLAYBACK SENSE
AIC DRIVE
AGC CONTROL
AIC DAMPER
+8.8V
+3.3V
YH
YL
Y(EDGE) WHITE SUPPRESS
AIC DRIVER
L. P. F
IC209(½) AIC AMP
VR205 Y GAIN
VR215 AIC SET
BR202(R2021~R2025)
IC203
BUFFER
H. APERTURE GENERATOR
AMP
GAIN CONTROL
LOW LEVEL CLIP
HIGH LEVEL CLIP
CLAMP
Hs/BL SEPARATION
BURST/SYNC MIX
PAL OUTPUT
Z204 3.58MHz TRAP
LC205 DELAY
F201
Q201 +9V SWITCHING
Q10 AIC START DELAY
Q11, 12 PAL SIGNAL SWITCHING
Q13 PLAYBACK SENSOR
Q14 Vs AMP
IC210
BR204(R2041~R2043)
CN205
1 [NOT USED]
2 PAL OUT
3 GROUND
TO DEFLECTION CIRCUIT BOARD
+6V
+9V
TRACKING-3
H. APERTURE
Hs/BL
CHROMA
CHROMA ENCODING
WHITE BALANCE DETECTION
Q207~Q209 BUFFER
IC205
CLAMP
R. COLOR REPRODUCTION CORRECTION
B. COLOR REPRODUCTION CORRECTION
GAMMA SELECTION
MATRIX
WHITE SUPPRESS
R. GAMMA CORRECTION
YL GAMMA CORRECTION
B. GAMMA CORRECTION
R. DETECTION
YL DETECTION
B. DETECTION
Hs/BL SEPARATION
R-YL BALANCE MODULATOR
B-YL BALANCE MODULATOR
H. APERTURE SUPPRESS
CHROMA CLIP/ SUPPRESS
BR214(R2141~R2143)
BR215(R2151~R2153)
BR216(R2161~R2166)
VR216 CHROMA GAIN
Q204,Q205 CHROMA AMP
Q206 WHITE BALANCE DETECTOR
BR223(R2231~R2234)
VR207 R PEDESTAL
V. EDGE
WHITE BALANCE DC
(R-Y)SC
(B-Y)SC
CN203
1 Vs IN
2 Hs IN
3 PRE BL IN
4 BL IN
6 SYNC IN
6 +7V OUT
7 D.HD IN
8 B.F.P. IN
9 (R-Y)SC IN
10 (B-Y)SC IN
TO SYNC CIRCUIT BOARD
VERTICAL EDGE SIGNAL GENERATOR
IC206
DIFF AMP
C208(1/2) DIFFERENTIAL AMP
DL202
T201
Q215, Q216 DETECTOR
Q210 MIX AMP
BR219(R2191~R2196)
Q211~Q214 V. EDGE OUT
BR217(R2171~R2173)
BR221(R2211~R2215)
Y(EDGE)
BR220(R2201~R2208)
VR230 V.EDGE BALANCE
PULSE DISTRIBUTION
IC212
Q20 90°PHASE SHIFTER
Q21 BUFFER
BR222(R2221~R2224)
VC202 BURST PHASE
IC207
IC211
Q15,Q16 BUFFER
Q17 BL AMP
Q18 BUFFER
Q19 +5V DC REGULATOR
Hs
5
6
7
8
9
10

CONDUCTOR VIEW OF PROCESS CIRCUIT BOARD (YWV3000EZK2)



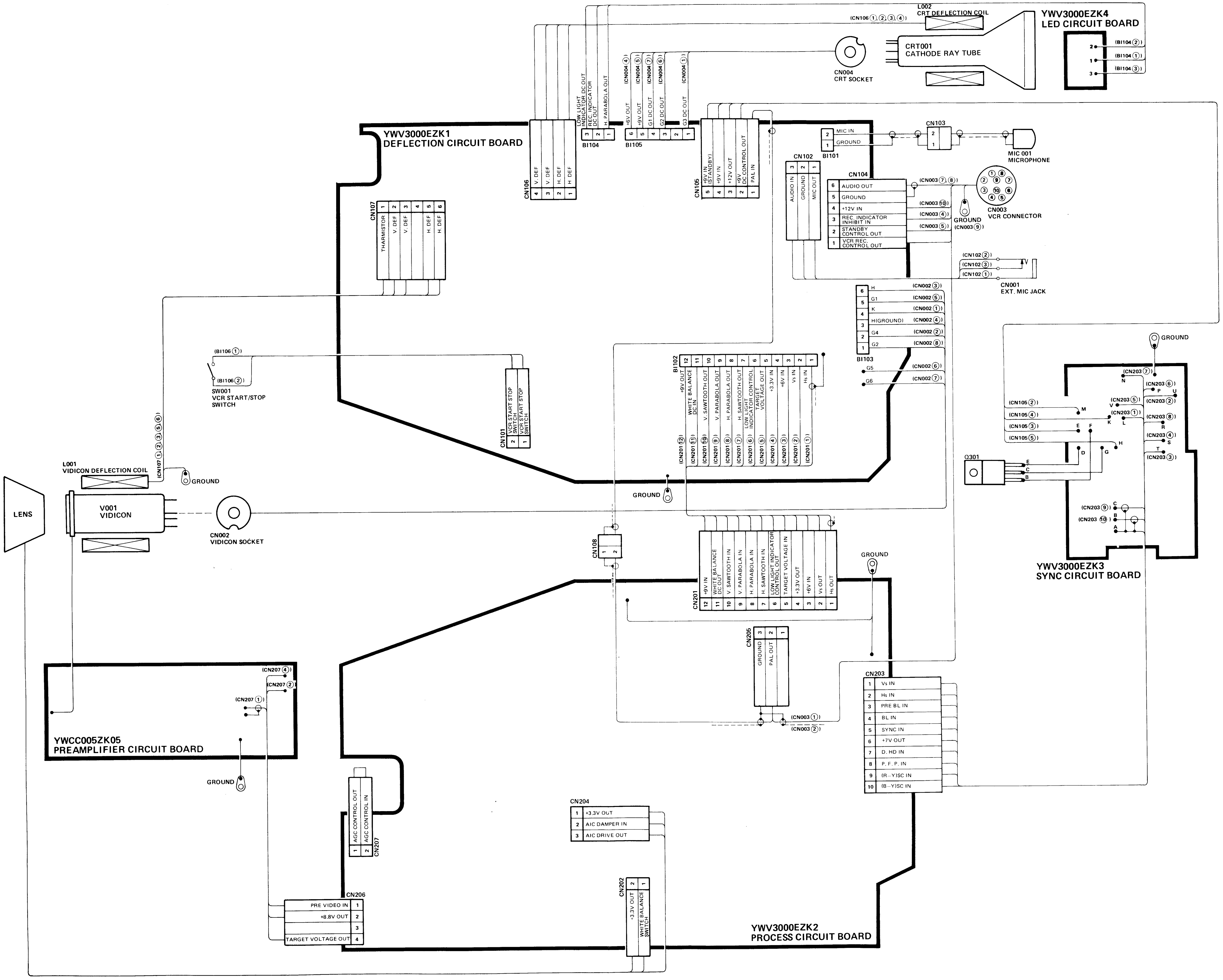
+3.3V OUT
WHITE BALANCE SWITCH
TO AIC LENS
CN202
GROUND
PAL OUT
[NOT USED]
TO DEFLECTION CIRCUIT BOARD
CN205
CN206
TARGET VOLTAGE OUT
+8.8V OUT
PRE VIDEO IN
TO PREAMPLIFIER CIRCUIT BOARD
TO AIC LENS
+3.3V OUT
AIC DAMPER IN
AIC DRIVE OUT
CN204
CN207
VR201 INPUT GAIN
VR222 R GAIN
VR221 B GAIN
VR202 TRACKING–3 SET
VR216 CHROMA GAIN
VR230 V. EDGE BALANCE
VR205 Y GAIN
VR203 Rc/Bc GAIN
VR204 YL PEDESTAL
VR215 AIC SET
VR217 OB CORRECTION–SAW
VR219 OB OFFSET
VR218 OB CORRECTION–PARA
VC202 BURST PHASE
CN203
(B–Y)SC IN
(R–Y)SC IN
B.F.P. IN
D. HD IN
+7V OUT
SYNC IN
BL IN
PRE BL IN
Hs IN
Vs IN
TO SYNC CIRCUIT BOARD
IC201
IC202
IC203
IC204
IC205
IC206
IC207
IC208
IC209
IC210
IC211
IC212
TP201
TP204
TP207
TP208
TP209
TP210
TP211
TP212
TP213
TP214
TP216
TP217
VR214 R–TRACKING–3
VR212 R–TRACKING–2
VR229 B–TRACKING–3
VR227 B–TRACKING–2
VR213 R–TRACKING–1
VR228 B–TRACKING–1
VR211 R–H. SAWTOOTH
VR226 B–H. SAWTOOTH
VR210 R–H. PARABOLA
VR225 B–H. PARABOLA
VR208 R–V. PARABOLA
VR223 B–V. PARABOLA
VR209 R–V. SAWTOOTH
VR224 B–V. SAWTOOTH
VR220 R GAIN PRESET
VR207 R PEDESTAL
VR206 Rc/Bc SEPARATION–2
VC201 Rc/Bc SEPARATION–1
GROUND
TO DEFLECTION CIRCUIT BOARD
CN201
+9V IN
WHITE BALANCE DC OUT
V. SAWTOOTH IN
V. PARABOLA IN
H. PARABOLA IN
H. SAWTOOTH IN
LOW LIGHT INDICATOR DC OUT
TARGET VOLTAGE IN
+3.3V OUT
+6V IN
Vs OUT
Hs OUT
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9

IC201	AN6015	E2, E3
IC202	AN6012	E3, E4
IC203	AN6022	D6, E6
IC204	AN6031	C5, D5
IC205	AN6045	D5, E5
IC206	AN614	F6
IC207	HD74LS02A	E7
IC208	YNJM4556D	D2
IC209	YHSNJM4558D	D3
IC210	EHMK220L20S	C7, D7
IC211	EHMK727A98S	C7, D7
IC212	EHMK111A97	E7

Q201	2SB793A-RST	D6
Q202	2SC2377-CD	C4
Q203	2SD636-QRS	C5
Q204	2SD636-QRS	F5
Q205	2SC2377-CD	F5
Q206	2SC2377-CD	F5
Q207	2SD636-QRS	E5
Q208	2SD636-QRS	E5
Q209	2SD636-QRS	E5
Q210	2SD636-QRS	F6
Q211	2SC2377-CD	F5
Q212	2SD636-QRS	F5
Q213	2SC2377-CD	F5
Q214	2SA838-CD	F5
Q215	2SC2377-CD	F7
Q216	2SC2377-CD	F7

D201	MA165	D4
D202	MA26W	D7
D203	MA165	F5
D204	MA165	E5
D206	MA165	E4

WIRING DIAGRAM


YWV3000EZK4
LED CIRCUIT BOARD
L002
CRT DEFLECTION COIL
CRT001
CATHODE RAY TUBE
CN004
CRT SOCKET
YWV3000EZK1
DEFLECTION CIRCUIT BOARD
CN106
V. DEF
H. DEF
BI104
LOW LIGHT INDICATOR DC OUT
REC. INDICATOR DC OUT
H. PARABOLA OUT
BI105
+6V OUT
+9V OUT
G1 DC OUT
G2 DC OUT
G3 DC OUT
CN105
+9V IN (STANDBY)
+9V IN
+12V OUT
+9V DC CONTROL OUT
PAL IN
BI101
MIC IN
GROUND
CN103
MIC 001
MICROPHONE
CN102
AUDIO IN
MIC OUT
CN104
AUDIO OUT
+12V IN
REC. INDICATOR INHIBIT IN
STANDBY CONTROL OUT
VCR REC. CONTROL OUT
CN003
VCR CONNECTOR
CN001
EXT. MIC JACK
CN107
THARMISTOR
BI103
H
G1
K
H(GROUND)
G4
G2
G5
G6
SW001
VCR START/STOP SWITCH
CN101
VCR START STOP SWITCH
BI102
+9V OUT
WHITE BALANCE DC IN
V. SAWTOOTH OUT
V. PARABOLA OUT
H. PARABOLA OUT
H. SAWTOOTH OUT
LOW LIGHT INDICATOR CONTROL
TARGET VOLTAGE OUT
+3.3V IN
+6V IN
Vs IN
Hs IN
Q301
YWV3000EZK3
SYNC CIRCUIT BOARD
L001
VIDICON DEFLECTION COIL
LENS
V001
VIDICON
CN002
VIDICON SOCKET
GROUND
CN108
CN201
+9V IN
WHITE BALANCE DC OUT
V. SAWTOOTH IN
V. PARABOLA IN
H. PARABOLA IN
H. SAWTOOTH IN
LOW LIGHT INDICATOR CONTROL OUT
TARGET VOLTAGE IN
+3.3V OUT
+6V IN
Vs OUT
Hs OUT
CN205
PAL OUT
CN203
Vs IN
Hs IN
PRE BL IN
BL IN
SYNC IN
+7V OUT
D. HD IN
P. F. P. IN
(R−Y)SC IN
(B−Y)SC IN
YWCC005ZK05
PREAMPLIFIER CIRCUIT BOARD
CN207
AGC CONTROL OUT
AGC CONTROL IN
CN204
+3.3V OUT
AIC DAMPER IN
AIC DRIVE OUT
CN206
PRE VIDEO IN
+8.8V OUT
TARGET VOLTAGE OUT
CN202
+3.3V OUT
WHITE BALANCE SWITCH
YWV3000EZK2
PROCESS CIRCUIT BOARD

REPLACEMENT PARTS LIST

Vol. 4

Important Notice

1. Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
2. Components identified by * mark are new parts used from this model.
3. This replacement parts list include only changed portion.

ORIGINAL PARTS			NEW PARTS		
SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
MISCELLANEOUS					
CN101-PM	EMCL0207D52V	Connecting Wire Ass'y for CN101 and BI106	CN101-PF	EMCM0212B52	2-Pin Plug Female
CN102-PF	EMCM0312C52V	3-Pin Plug Female	CN102-PF	EMCM0312C55V	3-Pin Plug Female
M053	* YWFAC17XAM4	Shield Plate A for Vidicon Socket	M053	* YWFAC17XAM4A	Shield Plate A for Vidicon Socket
YWV3000EZK1A DEFLECTION CIRCUIT BOARD					
PCB001	*YWV3000EZK1	Printed Circuit Board Ass'y	PCB001	*YWV3000EZK1A	Printed Circuit Board Ass'y
Q111	2SD959-PQ	Transistor	Q111	2SD975	Transistor
Q119	2SD866-PQ	Transistor	Q119	2SD975	Transistor
D110	MA165	Diode	——	——	——
——	——	——	D109	MA165	Diode
——	——	——	C177	ECEA1CK100B	Electrolytic 10μF 16V
L103	ELQ333D008J	Inductor 33mH	L103	YWEF7303MH	Inductor 33mH
——	——	——	CN101-JM	EMCS0252M	2-Pin Jack Male
CN104-JM	EMCS0852M	8-Pin Jack Male	CN104-JM	EMCS0652M	6-Pin Jack Male
CN105-JM	EMCS0452M	4-Pin Jack Male	CN105-JM	EMCS0552M	5-Pin Jack Male
BI102	EMCM1210B60V	Connecting Wire Ass'y for BI102 and CN201	BI102	EMCM1310B63V	Connecting Wire Ass'y for BI102 and CN201
BI103	EMCL0613D62W	6-Pin Connecting Wire Ass'y for BI103 and CN002	BI103	EMCL0613063W	6-Pin Connecting Wire Ass'y for BI103 and CN002
BI106	EMCL0207D52V	Connecting Wire Ass'y for for BI106 and CN101	——	——	——
BI107	EMCM0315B52V	Connecting Wire Ass'y for BI107 and CN205	——	——	——
YWV3000EZK2 PROCESS CIRCUIT BOARD					
——	——	——	F201	YWICP-N10	Fuse 0.4A
YWV3000EZK3A SYNC CIRCUIT BOARD					
PCB003	*YWV3000EZK3	Printed Circuit Board Ass'y	PCB003	*YWV3000EZK3A	Printed Circuit Board Ass'y
CN105-PF	EMCM0418D65	4-Pin Plug Female	CN105-PF	EMCM0518B54X	5-Pin Plug Female
YWCC500XK05 HANDLE GRIP ASSEMBLY					
M061 ⚠	*YWCC500KR05	Handle Grip Cover A	M061 ⚠	*YWCC500KR05A	Handle Grip Cover A
M062 ⚠	*YWCC500KR06	Handle Grip Cover B	M062 ⚠	*YWCC500KR06A	Handle Grip Cover B
——	——	——	M068	*YWCC500KR07	Grip Cap for Handle Grip Cover B

ORDER NO. VKD81070557S8

Service Manual

Colour Video Cameras

WV-3000E/WV-3000N

Supplement—1

- The Deflection Circuit Board (YWV3000EZKI) has been modified to increase arc resistance from Serial No. 140001 and higher.
- Please file this Supplement Service Manual with the Service Manual (AVD-8103-544).

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Process Circuit Board (YWV3000EZK2) .... 10~13

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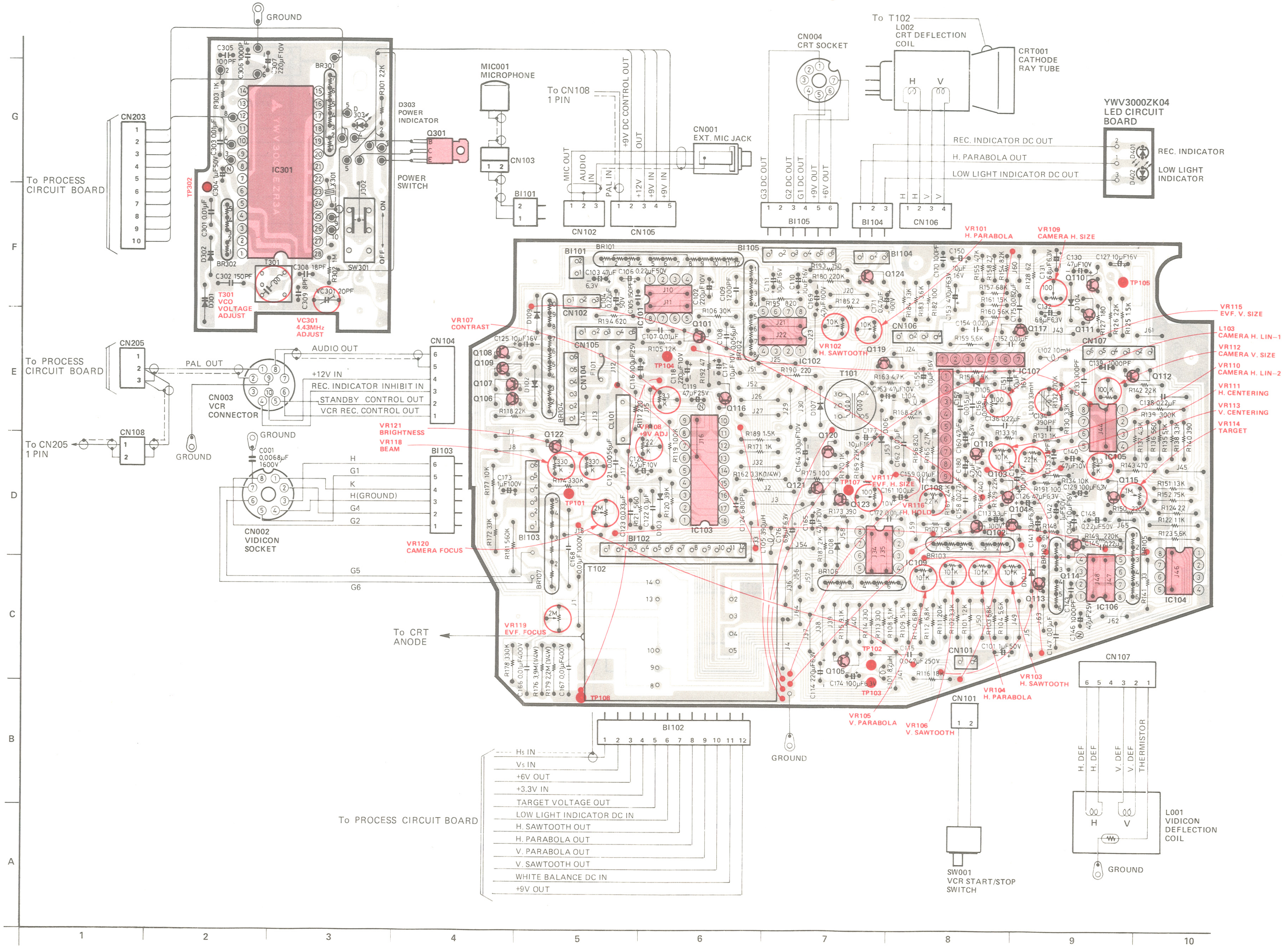
National/Panasonic

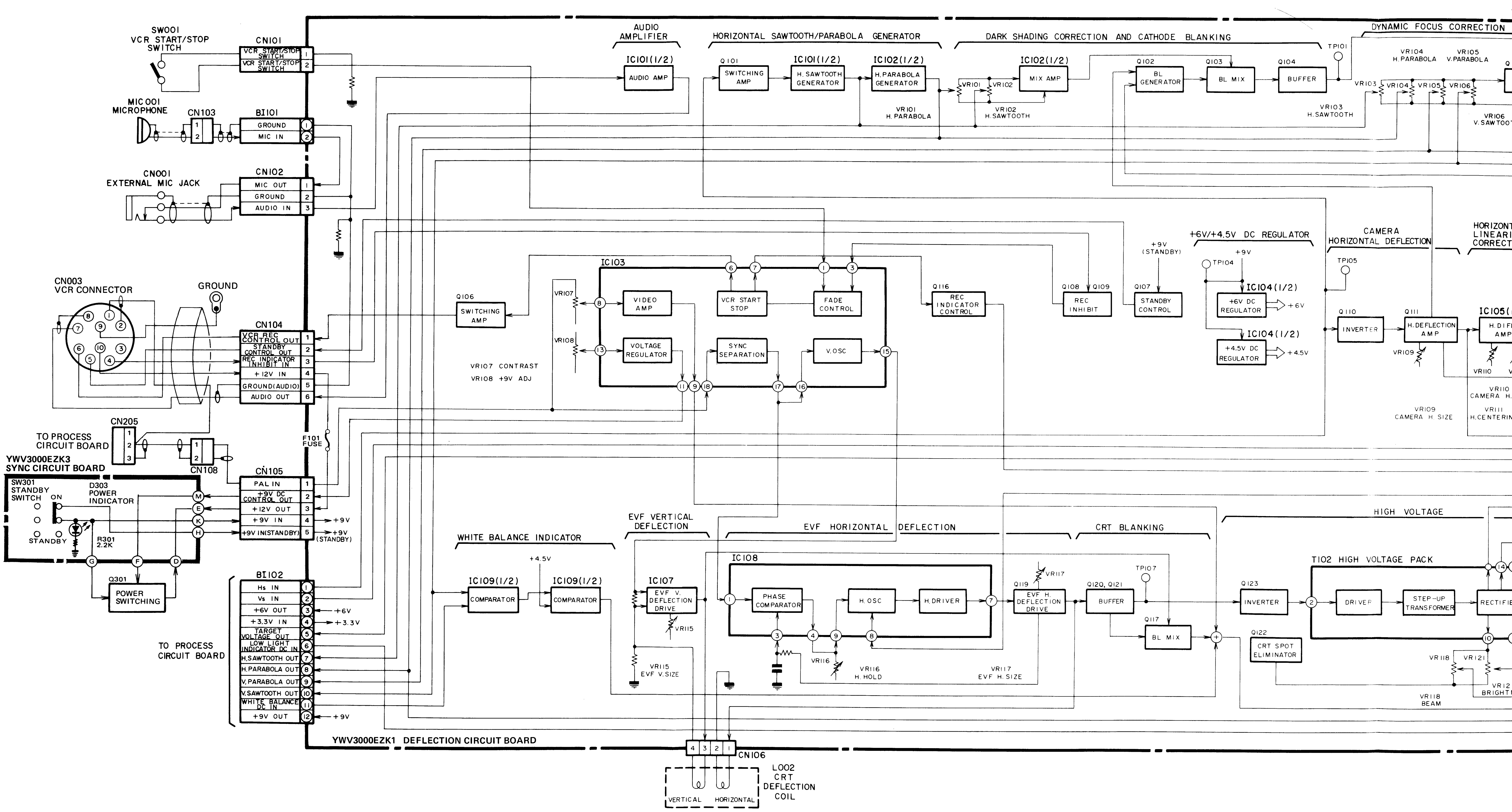
Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

CONDUCTOR VIEW OF DEFLECTION CIRCUIT BOARD (YWV3000EZK1) AND SYNC CIRCUIT BOARD (YWV3000EZK3)

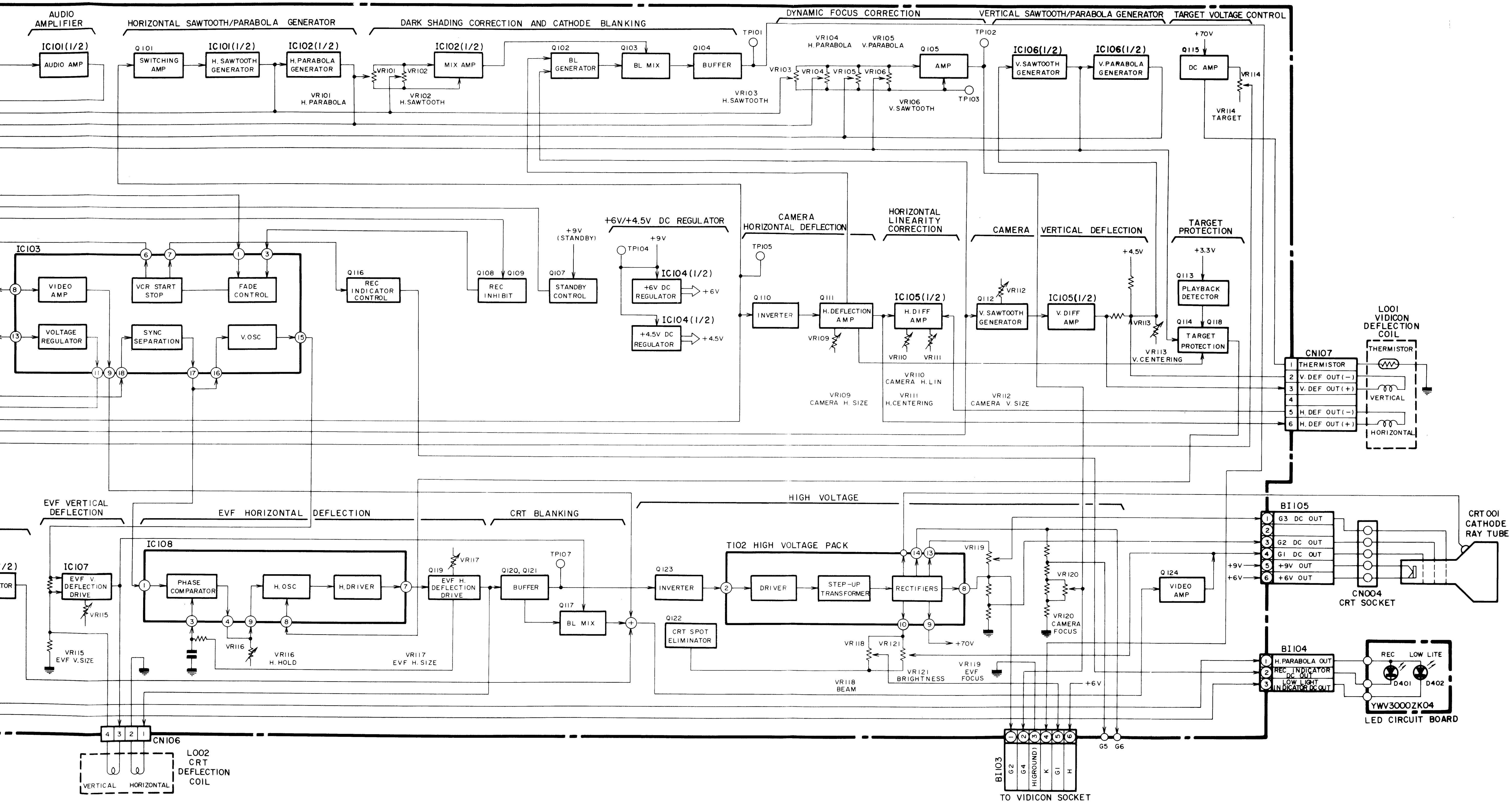
IC101	YHSNJM4558D	F6
IC102	NJM4560D	E7
IC103	AN6055	D6
IC104	NJM4556D	C10
IC105	NJM4556DT	E9
IC106	YHSNJM4558D	C9
IC107	AN374P	E8
IC108	AN5750	D8, E8
IC109	AN6914	D7
IC301	YWHD44007A	F3, G3
Q101	2SC2377-CD	E6
Q102	2SC2377-CD	D8
Q103	2SA749A	D8
Q104	2SA749A	D9
Q105	2SC1980-RST	C7
Q106	2SD636-QRS	E4
Q107	2SB641-QRS	E4
Q108	2SD636-QRS	E4
Q109	2SB641-QRS	E4
Q110	2SD638-QR	F9
Q111	2SD975	E9
Q112	2SD638-QR	E9
Q113	2SB641-QRS	C9
Q114	2SD636-QRS	D9
Q115	2SC1473NCQRS	D9
Q116	2SD661-TU	E6
Q117	2SB641-QRS	E9
Q118	2SD636-QRS	D8
Q119	2SD975	E7
Q120	2SC2377-CD	D7
Q121	2SA838-CD	D7
Q122	2SA749A	D5
Q123	2SD638-QR	D7
Q124	2SC1980-RST	F7
Q301	2SA1061-P	G4
D101	MA165	C9
D102	MA165	E5
D103	MA165	D6
D104	MA165	F9
D105	MA165	E8
D106	YUDRU2M	D7
D107	MA165	E7
D108	MA165	D7
D109	MA165	E5
D301	YUD1S2688	F2
D302	YUD1S2688	F2
D303	LN217RP	G3
D401	LN23SRP-D	G10
D402	LN43SYP	G10


G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
GROUND
CN203
To PROCESS CIRCUIT BOARD
IC301
YWV3000EZK3
TP302
T301 VCO VOLTAGE ADJUST
VC301 4.43MHz ADJUST
BR301
BR302
SW301
D303 POWER INDICATOR
Q301
POWER SWITCH
MIC001 MICROPHONE
CN103
BI101
To CN108 1 PIN
+9V DC CONTROL OUT
OUT
MIC OUT
AUDIO IN
PAL IN
+12V
+9V IN
+9V IN
CN102
CN105
CN001 EXT. MIC JACK
CN004 CRT SOCKET
G3 DC OUT
G2 DC OUT
G1 DC OUT
+9V OUT
+6V OUT
BI105
To T102
L002 CRT DEFLECTION COIL
CRT001 CATHODE RAY TUBE
H
V
BI104
CN106
YWV3000ZK04 LED CIRCUIT BOARD
REC. INDICATOR DC OUT
H. PARABOLA OUT
LOW LIGHT INDICATOR DC OUT
REC. INDICATOR
LOW LIGHT INDICATOR
D401
D402
CN205
PAL OUT
AUDIO OUT
+12V IN
REC. INDICATOR INHIBIT IN
STANDBY CONTROL OUT
VCR REC. CONTROL OUT
CN104
CN003 VCR CONNECTOR
CN108
To CN205 1 PIN
GROUND
C001 0.0068µF 1600V
CN002 VIDICON SOCKET
H
G1
K
H(GROUND)
G4
G2
BI103
G5
G6
To CRT ANODE
VR101 H. PARABOLA
VR109 CAMERA H. SIZE
TP105
VR115 EVF. V. SIZE
L103 CAMERA H. LIN-1
VR112 CAMERA V. SIZE
VR110 CAMERA H. LIN-2
VR111 H. CENTERING
VR113 V. CENTERING
VR114 TARGET
VR107 CONTRAST
VR102 H. SAWTOOTH
TP104
VR108 +9V ADJ
VR121 BRIGHTNESS
VR118 BEAM
VR117 EVF. H. SIZE
TP107
VR116 H. HOLD
TP101
VR120 CAMERA FOCUS
VR119 EVF. FOCUS
TP106
TP102
TP103
VR105 V. PARABOLA
VR106 V. SAWTOOTH
VR104 H. PARABOLA
VR103 H. SAWTOOTH
IC101
IC102
IC103
IC104
IC105
IC106
IC107
IC108
T101
T102
BI101
BI102
CN101
CN107
BI102
Hs IN
Vs IN
+6V OUT
+3.3V IN
TARGET VOLTAGE OUT
LOW LIGHT INDICATOR DC IN
H. SAWTOOTH OUT
H. PARABOLA OUT
V. PARABOLA OUT
V. SAWTOOTH OUT
WHITE BALANCE DC IN
+9V OUT
To PROCESS CIRCUIT BOARD
GROUND
CN101
SW001 VCR START/STOP SWITCH
CN107
H. DEF
H. DEF
V. DEF
V. DEF
THERMISTOR
L001 VIDICON DEFLECTION COIL
GROUND

BLOCK DIAGRAM OF DEFLECTION CIRCUIT BOARD (YWV3000EZK1)

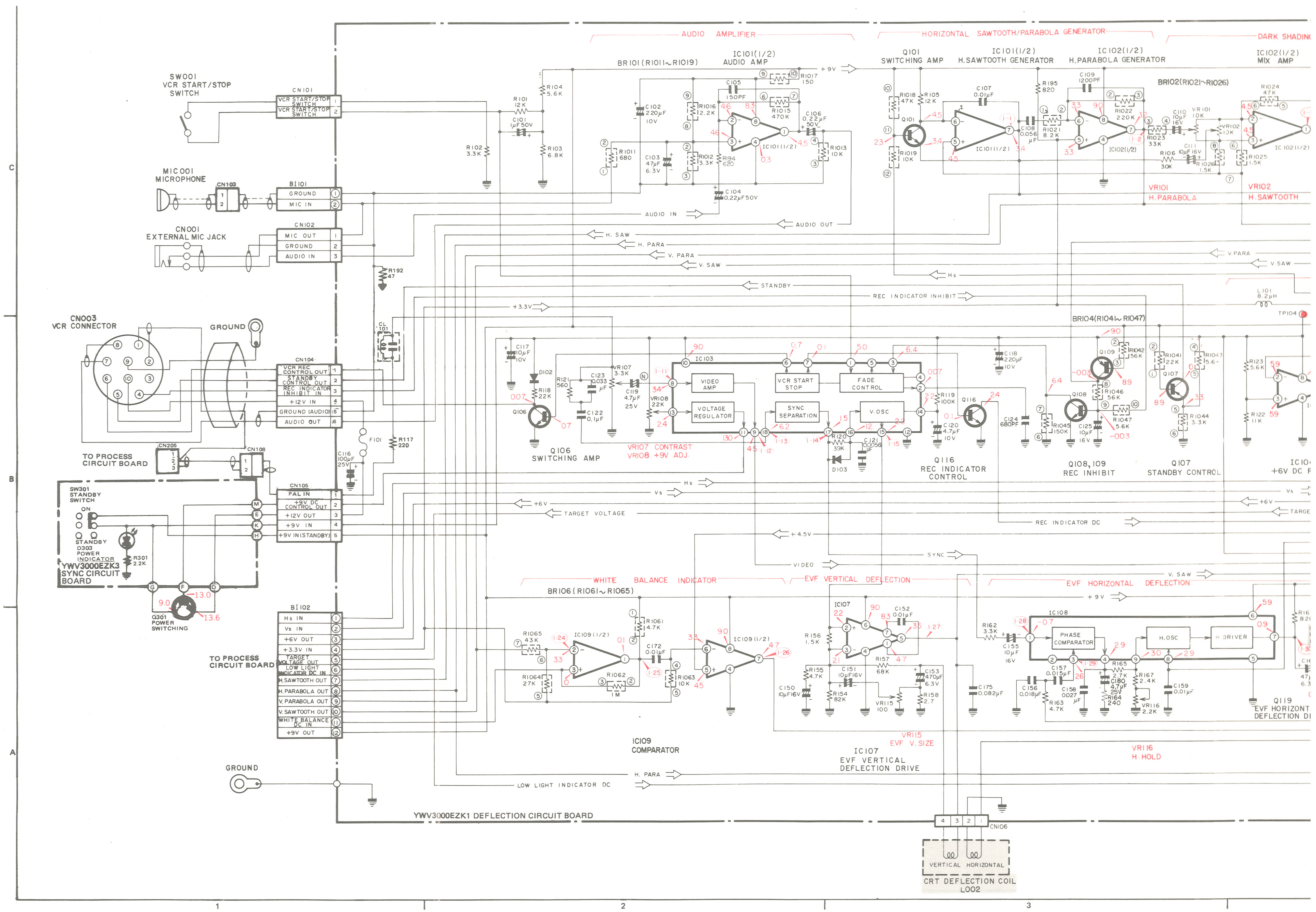

SW001 VCR START/STOP SWITCH
CN101
VCR START/STOP SWITCH
MIC 001 MICROPHONE
CN103
BI101
GROUND
MIC IN
CN001 EXTERNAL MIC JACK
CN102
MIC OUT
AUDIO IN
CN003 VCR CONNECTOR
GROUND
CN104
VCR REC CONTROL OUT
STANDBY CONTROL OUT
REC INDICATOR INHIBIT IN
+12V IN
GROUND(AUDIO)
AUDIO OUT
CN205
TO PROCESS CIRCUIT BOARD
CN108
F101 FUSE
YWV3000EZK3 SYNC CIRCUIT BOARD
SW301 STANDBY SWITCH
ON
STANDBY
D303 POWER INDICATOR
R301 2.2K
Q301
POWER SWITCHING
CN105
PAL IN
+9V DC CONTROL OUT
+12V OUT
+9V IN
+9V IN(STANDBY)
+9V
+9V (STANDBY)
BI102
Hs IN
Vs IN
+6V OUT
+3.3V IN
TARGET VOLTAGE OUT
LOW LIGHT INDICATOR DC IN
H.SAWTOOTH OUT
H.PARABOLA OUT
V.PARABOLA OUT
V.SAWTOOTH OUT
WHITE BALANCE DC IN
+9V OUT
+6V
+3.3V
+9V
TO PROCESS CIRCUIT BOARD
YWV3000EZK1 DEFLECTION CIRCUIT BOARD
AUDIO AMPLIFIER
IC101(1/2)
AUDIO AMP
HORIZONTAL SAWTOOTH/PARABOLA GENERATOR
Q101
SWITCHING AMP
IC101(1/2)
H. SAWTOOTH GENERATOR
IC102(1/2)
H. PARABOLA GENERATOR
VR101 H. PARABOLA
DARK SHADING CORRECTION AND CATHODE BLANKING
VR101
VR102
VR102 H. SAWTOOTH
IC102(1/2)
MIX AMP
Q102
BL GENERATOR
Q103
BL MIX
Q104
BUFFER
TP101
VR103 H. SAWTOOTH
DYNAMIC FOCUS CORRECTION
VR104 H. PARABOLA
VR105 V. PARABOLA
VR103
VR104
VR105
VR106
VR106 V. SAWTOOTH
IC103
Q106
SWITCHING AMP
VR107
VR108
VIDEO AMP
VOLTAGE REGULATOR
VCR START STOP
FADE CONTROL
SYNC SEPARATION
V. OSC
VR107 CONTRAST
VR108 +9V ADJ
Q116
REC INDICATOR CONTROL
Q108
Q109
REC INHIBIT
+9V (STANDBY)
Q107
STANDBY CONTROL
+6V/+4.5V DC REGULATOR
+9V
TP104
IC104(1/2)
+6V DC REGULATOR
+6V
IC104(1/2)
+4.5V DC REGULATOR
+4.5V
CAMERA HORIZONTAL DEFLECTION
TP105
Q110
INVERTER
Q111
H. DEFLECTION AMP
VR109
VR109 CAMERA H SIZE
HORIZONT LINEARI CORRECT
IC105(
H. DIFF AMP
VR110
VR110 CAMERA H.
VR111 H. CENTERIN
WHITE BALANCE INDICATOR
+4.5V
IC109(1/2)
COMPARATOR
IC109(1/2)
COMPARATOR
EVF VERTICAL DEFLECTION
IC107
EVF V. DEFLECTION DRIVE
VR115
VR115 EVF V. SIZE
EVF HORIZONTAL DEFLECTION
IC108
PHASE COMPARATOR
H. OSC
H. DRIVER
VR116
VR116 H. HOLD
Q119
VR117
EVF H. DEFLECTION DRIVE
VR117 EVF H. SIZE
CRT BLANKING
Q120, Q121
BUFFER
TP107
Q117
BL MIX
HIGH VOLTAGE
Q123
INVERTER
Q122
CRT SPOT ELIMINATOR
T102 HIGH VOLTAGE PACK
DRIVER
STEP-UP TRANSFORMER
RECTIFIE
VR118
VR121
VR118 BEAM
VR12 BRIGHT
CN106
L002 CRT DEFLECTION COIL
VERTICAL
HORIZONTAL

BLOCK DIAGRAM OF DEFLECTION CIRCUIT BOARD (YWV3000EZK1)


AUDIO AMPLIFIER
IC101(1/2)
AUDIO AMP
HORIZONTAL SAWTOOTH/PARABOLA GENERATOR
Q101
SWITCHING AMP
IC101(1/2)
H. SAWTOOTH GENERATOR
IC102(1/2)
H. PARABOLA GENERATOR
VR101
H. PARABOLA
DARK SHADING CORRECTION AND CATHODE BLANKING
VR101
VR102
IC102(1/2)
MIX AMP
VR102
H. SAWTOOTH
Q102
BL GENERATOR
Q103
BL MIX
Q104
BUFFER
TP101
VR103
H. SAWTOOTH
DYNAMIC FOCUS CORRECTION
VR104
H. PARABOLA
VR105
V. PARABOLA
VR103
VR104
VR105
VR106
Q105
AMP
TP102
TP103
VR106
V. SAWTOOTH
VERTICAL SAWTOOTH/PARABOLA GENERATOR
IC106(1/2)
V. SAWTOOTH GENERATOR
IC106(1/2)
V. PARABOLA GENERATOR
TARGET VOLTAGE CONTROL
+70V
Q115
DC AMP
VR114
VR114
TARGET
IC103
VIDEO AMP
VOLTAGE REGULATOR
VCR START STOP
SYNC SEPARATION
FADE CONTROL
V. OSC
Q116
REC INDICATOR CONTROL
Q108
Q109
REC INHIBIT
+9V
(STANDBY)
Q107
STANDBY CONTROL
+6V/+4.5V DC REGULATOR
+9V
TP104
IC104(1/2)
+6V DC REGULATOR
+6V
IC104(1/2)
+4.5V DC REGULATOR
+4.5V
CAMERA HORIZONTAL DEFLECTION
TP105
Q110
INVERTER
Q111
H. DEFLECTION AMP
VR109
VR109
CAMERA H SIZE
HORIZONTAL LINEARITY CORRECTION
IC105(1/2)
H. DIFF AMP
VR110
VR111
VR110
CAMERA H. LIN
VR111
H. CENTERING
CAMERA VERTICAL DEFLECTION
Q112
VR112
V. SAWTOOTH GENERATOR
IC105(1/2)
V. DIFF AMP
+4.5V
VR113
VR113
V. CENTERING
VR112
CAMERA V SIZE
TARGET PROTECTION
+3.3V
Q113
PLAYBACK DETECTOR
Q114
Q118
TARGET PROTECTION
CN107
THERMISTOR
V. DEF OUT(−)
V. DEF OUT(+)
H. DEF OUT(−)
H. DEF OUT(+)
L001
VIDICON DEFLECTION COIL
THERMISTOR
VERTICAL
HORIZONTAL
EVF VERTICAL DEFLECTION
IC107
EVF V. DEFLECTION DRIVE
VR115
VR115
EVF V. SIZE
EVF HORIZONTAL DEFLECTION
IC108
PHASE COMPARATOR
H. OSC
H. DRIVER
VR116
VR116
H. HOLD
Q119
VR117
EVF H. DEFLECTION DRIVE
VR117
EVF H. SIZE
CRT BLANKING
Q120, Q121
BUFFER
TP107
Q117
BL MIX
HIGH VOLTAGE
Q123
INVERTER
Q122
CRT SPOT ELIMINATOR
T102 HIGH VOLTAGE PACK
DRIVER
STEP-UP TRANSFORMER
RECTIFIERS
VR119
VR118
VR121
+70V
VR118
BEAM
VR121
BRIGHTNESS
VR119
EVF FOCUS
VR120
VR120
CAMERA FOCUS
Q124
VIDEO AMP
+9V
+6V
+6V
B1105
G3 DC OUT
G2 DC OUT
G1 DC OUT
+9V OUT
+6V OUT
CN004
CRT SOCKET
CRT001
CATHODE RAY TUBE
B1104
H. PARABOLA OUT
REC INDICATOR DC OUT
LOW LIGHT INDICATOR DC OUT
REC
LOW LITE
D401
D402
YWV3000ZK04
LED CIRCUIT BOARD
CN106
L002
CRT DEFLECTION COIL
VERTICAL
HORIZONTAL
B1103
G2
G4
H(GROUND)
K
G1
H
TO VIDICON SOCKET
G5
G6

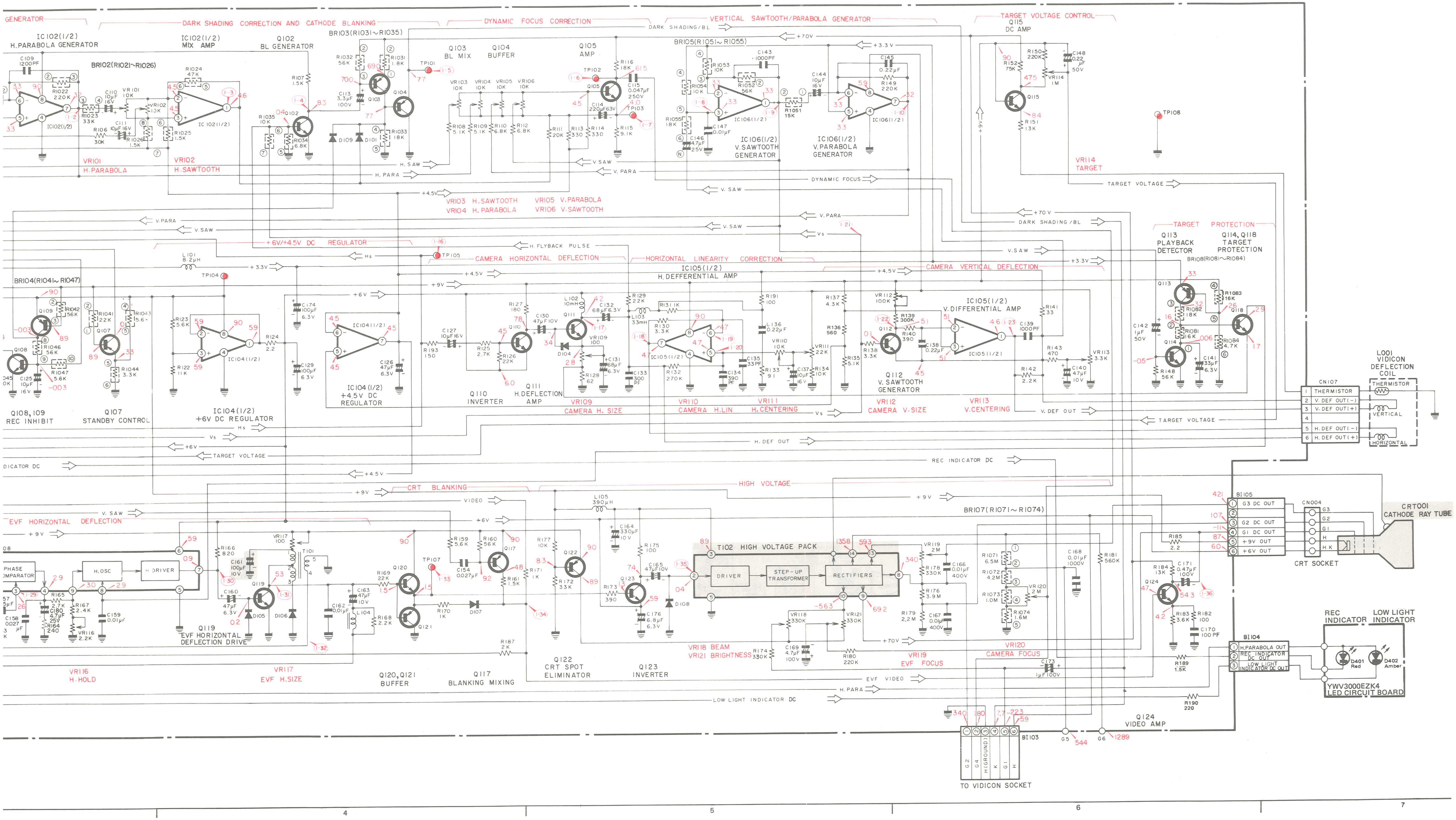
SCHEMATIC DIAGRAM OF DEFLECTION C

IC101	YHSNJM4558D	C2, C3
IC102	NJM4560D	C3, C4
IC103	AN6055	B2, B3
IC104	NJM4556D	B4
IC105	NJM4556DT	B5, B6
IC106	YHSNJM4558D	C5
IC107	AN374P	A3
IC108	AN5750	A3, A4
IC109	AN6914	A2
Q101	2SC2377-CD	C3
Q102	2SC2377-CD	C4
Q103	2SA749A	C4
Q104	2SA749A	C4
Q105	2SC1980-RST	C5
Q106	2SD636-QRS	B2
Q107	2SB641-QRS	B3
Q108	2SD636-QRS	B3
Q109	2SB641-QRS	B3
Q110	2SD638-QR	B4
Q111	2SD975	B5
Q112	2SD638-QR	B6
Q113	2SB641-QRS	B6
Q114	2SD636-QRS	B6
Q115	2SC1473NCQRS	C6
Q116	2SD661-TU	B3
Q117	2SB641-QRS	A4
Q118	2SD636-QRS	B6
Q119	2SD975	A4
Q120	2SC2377-CD	A4
Q121	2SA838-CD	A4
Q122	2SA749A	A5
Q123	2SD638-QR	A5
Q124	2SC1980-RST	A6
Q301	2SA1061-P	A1
D101	MA165	C4
D102	MA165	B2
D103	MA165	B3
D104	MA165	B5
D105	MA165	A4
D106	YUDRU2M	A4
D107	MA165	A4
D108	MA165	A5
D110	MA165	C4
D303	LN217RP	B1
D401	LN23SRP-D	A7
D402	LN43SYP	A7



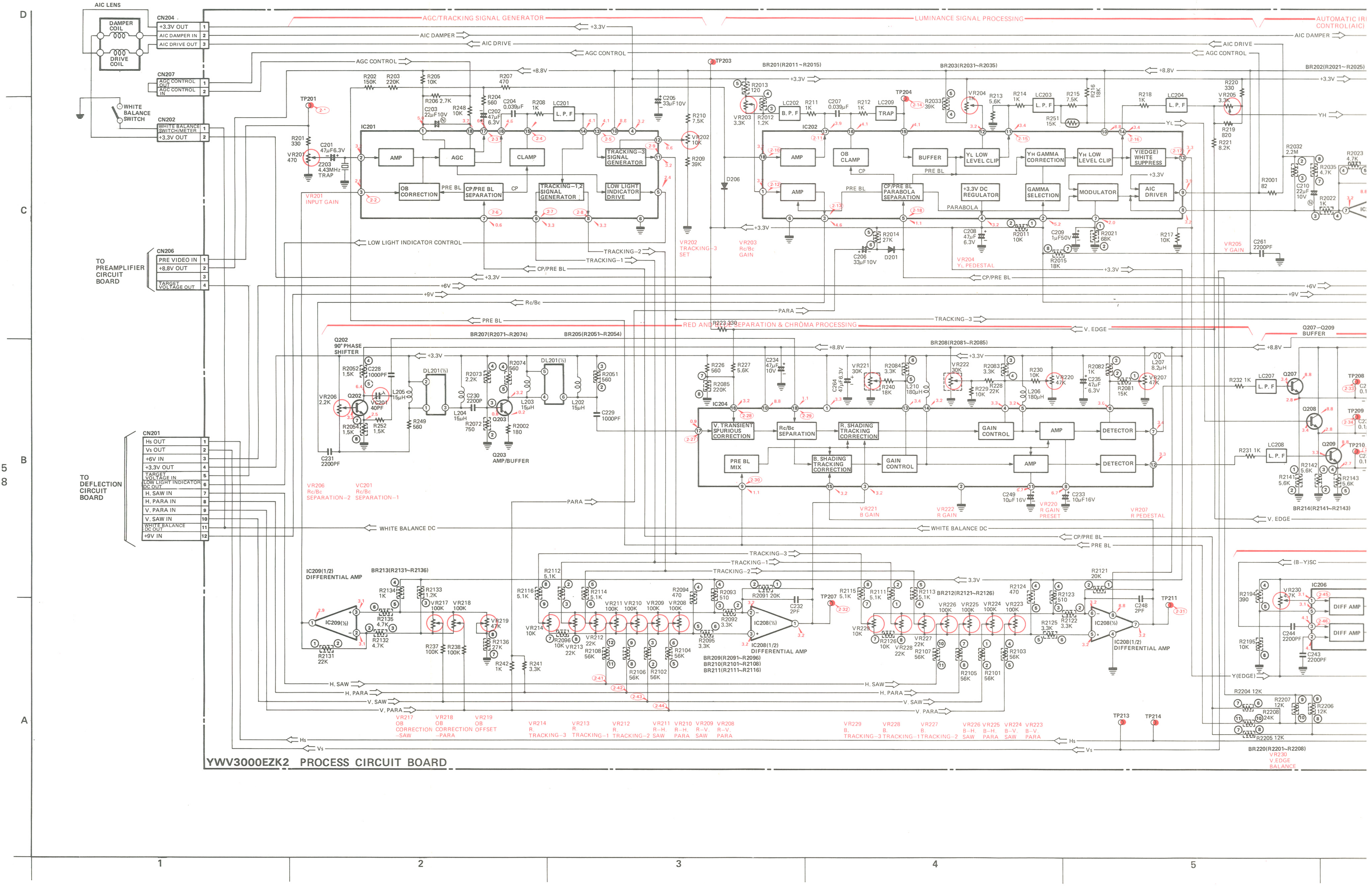
C
B
A
1
2
3
AUDIO AMPLIFIER
HORIZONTAL SAWTOOTH/PARABOLA GENERATOR
DARK SHADING
BR101(R1011~R1019)
IC101(1/2) AUDIO AMP
Q101 SWITCHING AMP
IC101(1/2) H.SAWTOOTH GENERATOR
IC102(1/2) H.PARABOLA GENERATOR
IC102(1/2) MIX AMP
BR102(R1021~R1026)
VR101 H.PARABOLA
VR102 H.SAWTOOTH
SW001 VCR START/STOP SWITCH
CN101
VCR START/STOP SWITCH
MIC001 MICROPHONE
CN103
B1101
GROUND
MIC IN
CN001 EXTERNAL MIC JACK
CN102
MIC OUT
AUDIO IN
AUDIO IN
AUDIO OUT
H. SAW
H. PARA
V. PARA
V. SAW
STANDBY
REC INDICATOR INHIBIT
+3.3V
Hs
CN003 VCR CONNECTOR
GROUND
CN104
VCR REC CONTROL OUT
STANDBY CONTROL OUT
REC INDICATOR INHIBIT IN
+12V IN
GROUND (AUDIO)
AUDIO OUT
TO PROCESS CIRCUIT BOARD
CN205
CN108
CN105
PAL IN
+9V DC CONTROL OUT
+12V OUT
+9V IN
+9V IN(STANDBY)
SW301 STANDBY SWITCH
ON
STANDBY
D303 POWER INDICATOR
YWV3000EZK3 SYNC CIRCUIT BOARD
Q301 POWER SWITCHING
IC103
VIDEO AMP
VCR START STOP
FADE CONTROL
VOLTAGE REGULATOR
SYNC SEPARATION
V.OSC
Q106 SWITCHING AMP
VR107 CONTRAST
VR108 +9V ADJ
Q116 REC INDICATOR CONTROL
BR104(R1041~R1047)
Q108, 109 REC INHIBIT
Q107 STANDBY CONTROL
+6V DC
Vs
+6V
TARGET VOLTAGE
REC INDICATOR DC
+4.5V
SYNC
VIDEO
V. SAW
WHITE BALANCE INDICATOR
EVF VERTICAL DEFLECTION
EVF HORIZONTAL DEFLECTION
BR106(R1061~R1065)
IC109(1/2)
IC109 COMPARATOR
IC107
IC107 EVF VERTICAL DEFLECTION DRIVE
VR115 EVF V. SIZE
IC108
PHASE COMPARATOR
H.OSC
H.DRIVER
VR116 H.HOLD
Q119 EVF HORIZONTAL DEFLECTION
B1102
TO PROCESS CIRCUIT BOARD
Hs IN
Vs IN
+6V OUT
+3.3V IN
TARGET VOLTAGE OUT
LOW LIGHT INDICATOR DC IN
H.SAWTOOTH OUT
H.PARABOLA OUT
V.PARABOLA OUT
V.SAWTOOTH OUT
WHITE BALANCE DC IN
+9V OUT
GROUND
H. PARA
LOW LIGHT INDICATOR DC
YWV3000EZK1 DEFLECTION CIRCUIT BOARD
CN106
VERTICAL
HORIZONTAL
CRT DEFLECTION COIL L002

RAM OF DEFLECTION CIRCUIT BOARD (YWV3000EZK1)

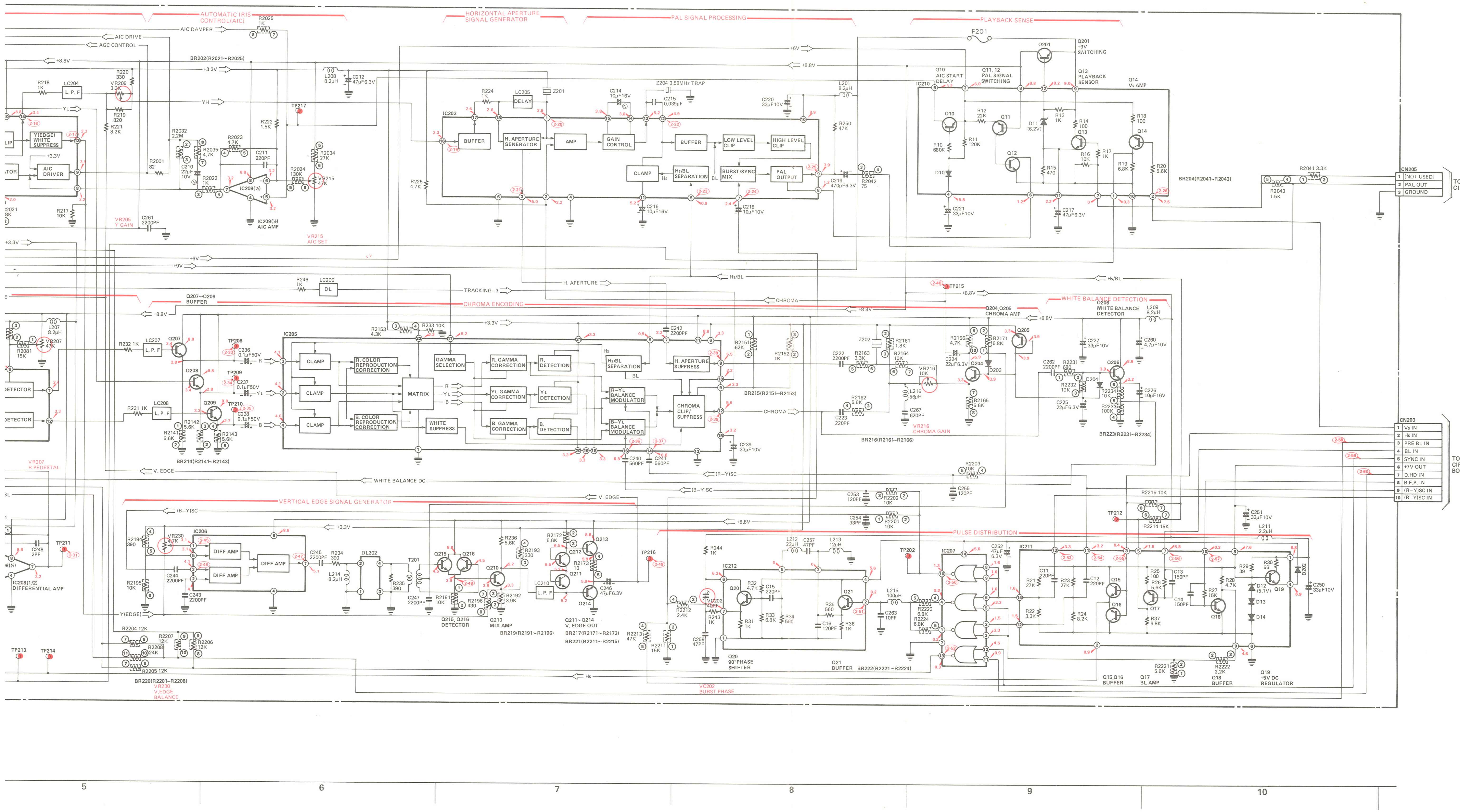

GENERATOR
DARK SHADING CORRECTION AND CATHODE BLANKING
DYNAMIC FOCUS CORRECTION
VERTICAL SAWTOOTH/PARABOLA GENERATOR
TARGET VOLTAGE CONTROL
IC102(1/2) H.PARABOLA GENERATOR
IC102(1/2) MIX AMP
Q102 BL GENERATOR
BRI03(R1031~R1035)
Q103 BL MIX
Q104 BUFFER
Q105 AMP
BRI05(R1051~R1055)
IC106(1/2) V.SAWTOOTH GENERATOR
IC106(1/2) V.PARABOLA GENERATOR
Q115 DC AMP
VR114 TARGET
TARGET VOLTAGE
TP108
BRI02(R1021~R1026)
VR101 H.PARABOLA
VR102 H.SAWTOOTH
VR103 H.SAWTOOTH
VR104 H.PARABOLA
VR105 V.PARABOLA
VR106 V.SAWTOOTH
DARK SHADING/BL
DYNAMIC FOCUS
H. SAW
H. PARA
V. SAW
V. PARA
+70V
+3.3V
+4.5V
+6V/+4.5V DC REGULATOR
H. FLYBACK PULSE
CAMERA HORIZONTAL DEFLECTION
HORIZONTAL LINEARITY CORRECTION
CAMERA VERTICAL DEFLECTION
TARGET PROTECTION
Q113 PLAYBACK DETECTOR
Q114, Q118 TARGET PROTECTION
BRI08(R1081~R1084)
BRI04(R1041~R1047)
IC105(1/2) H.DEFFERENTIAL AMP
IC105(1/2) V.DIFFERENTIAL AMP
Q108, Q109 REC INHIBIT
Q107 STANDBY CONTROL
IC104(1/2) +6V DC REGULATOR
IC104(1/2) +4.5V DC REGULATOR
Q110 INVERTER
Q111 H.DEFLECTION AMP
VR109 CAMERA H. SIZE
VR110 CAMERA H.LIN
VR111 H.CENTERING
Q112 V. SAWTOOTH GENERATOR
VR112 CAMERA V.SIZE
VR113 V.CENTERING
V. DEF OUT
H. DEF OUT
L001 VIDICON DEFLECTION COIL
CN107
1 THERMISTOR
2 V. DEF OUT(−)
3 V. DEF OUT(+)
4
5 H. DEF OUT(−)
6 H. DEF OUT(+)
THERMISTOR
VERTICAL
HORIZONTAL
REC INDICATOR DC
TARGET VOLTAGE
Vs
Hs
CRT BLANKING
HIGH VOLTAGE
VIDEO
EVF HORIZONTAL DEFLECTION
PHASE COMPARATOR
H.OSC
H DRIVER
Q119 EVF HORIZONTAL DEFLECTION DRIVE
VR116 H.HOLD
VR117 EVF H.SIZE
Q120,Q121 BUFFER
Q117 BLANKING MIXING
Q122 CRT SPOT ELIMINATOR
Q123 INVERTER
T102 HIGH VOLTAGE PACK
DRIVER
STEP-UP TRANSFORMER
RECTIFIERS
VR118 BEAM
VR121 BRIGHTNESS
VR119 EVF FOCUS
VR120 CAMERA FOCUS
BRI07(R1071~R1074)
BI105
1 G3 DC OUT
2
3 G2 DC OUT
4 G1 DC OUT
5 +9V OUT
6 +6V OUT
CN004
G3
G2
G1
H
H K
CRT SOCKET
CRT001 CATHODE RAY TUBE
BI104
1 H.PARABOLA OUT
2 REC INDICATOR DC OUT
3 LOW LIGHT INDICATOR DC OUT
REC INDICATOR
LOW LIGHT INDICATOR
D401 Red
D402 Amber
YWV3000EZK4 LED CIRCUIT BOARD
Q124 VIDEO AMP
EVF VIDEO
H. PARA
LOW LIGHT INDICATOR DC
BI103
G2
G4
H(GROUND)
K
G1
H
G5
G6
TO VIDICON SOCKET
4
5
6
7

SCHEMATIC DIAGRAM OF

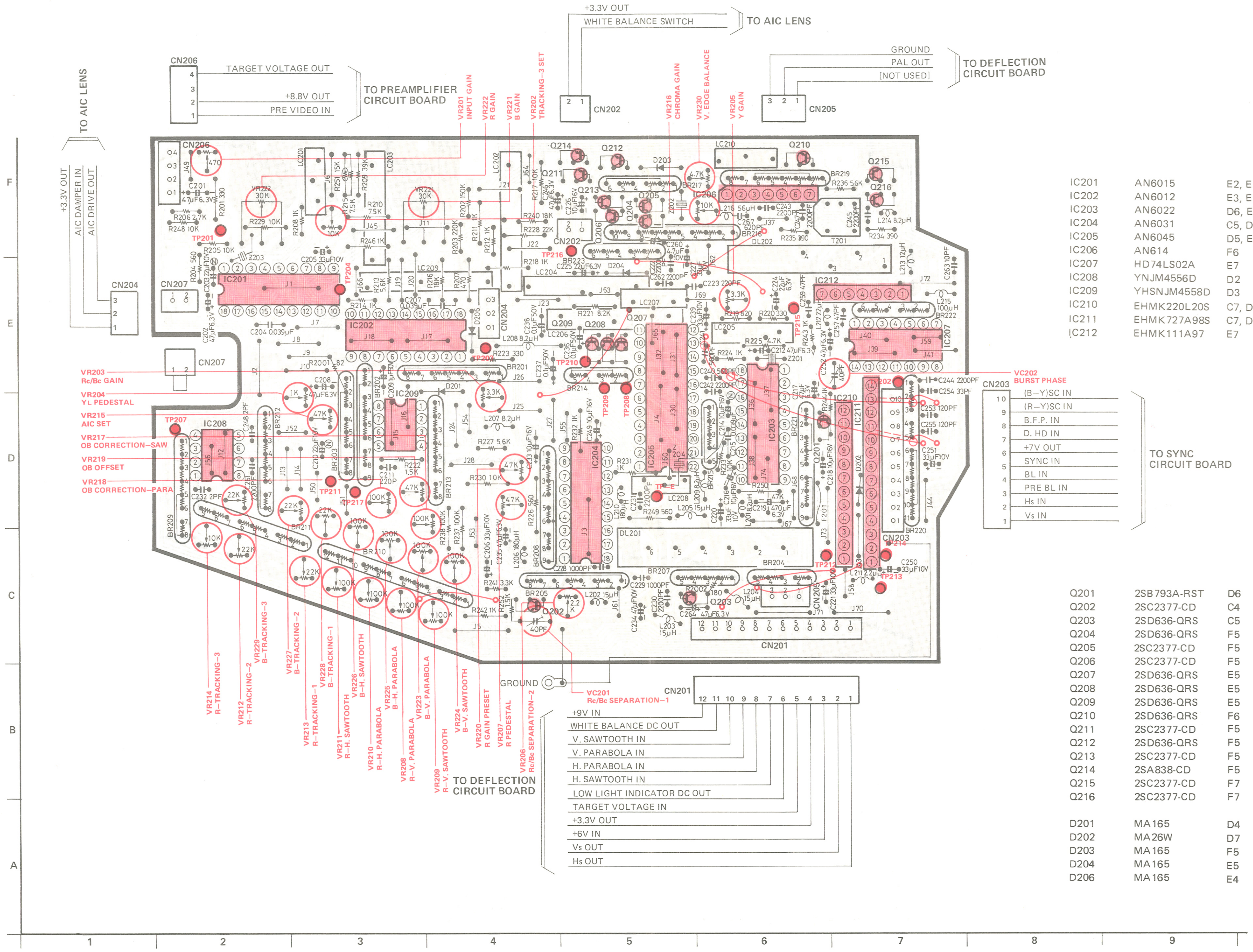
IC201	AN6015	C2, C3
IC202	AN6012	C4, C5
IC203	AN6022	C7, C8
IC204	AN6031	B3, B4, B5
IC205	AN6045	B6, B7, B8
IC206	AN614	A6
IC207	HD74LS02A	A9
IC208	YNJM4556D	A3, A5
IC209	YHSNJM4558D	A2, C6
IC210	EHMK220L20S	C9, C10
IC211	EHMK727A98S	A9, A10
IC212	EHMK111A97	A8
Q201	2SB793A-RST	D9
Q202	2SC2377-CD	B2
Q203	2SD636-QRS	B2
Q204	2SD636-QRS	B9
Q205	2SC2377-CD	B9
Q206	2SC2377-CD	B9
Q207	2SD636-QRS	B5
Q208	2SD636-QRS	B6
Q209	2SD636-QRS	B6
Q210	2SD636-QRS	A7
Q211	2SC2377-CD	A7
Q212	2SD636-QRS	A7
Q213	2SC2377-CD	A7
Q214	2SA838-CD	A7
Q215	2SC2377-CD	A7
Q216	2SC2377-CD	A7
D201	MA165	C4
D202	MA26W	A10
D203	MA165	B9
D204	MA165	B9
D206	MA165	C3


D
C
B
A
1
2
3
4
5
AIC LENS
DAMPER COIL
DRIVE COIL
CN204
+3.3V OUT
AIC DAMPER IN
AIC DRIVE OUT
CN207
AGC CONTROL OUT
AGC CONTROL IN
WHITE BALANCE SWITCH
CN202
WHITE BALANCE SWITCH/METER
+3.3V OUT
TO PREAMPLIFIER CIRCUIT BOARD
CN206
PRE VIDEO IN
+8.8V OUT
TARGET VOLTAGE OUT
TO DEFLECTION CIRCUIT BOARD
CN201
Hs OUT
Vs OUT
+6V IN
+3.3V OUT
TARGET VOLTAGE IN
LOW LIGHT INDICATOR DC OUT
H. SAW IN
H. PARA IN
V. PARA IN
V. SAW IN
WHITE BALANCE DC OUT
+9V IN
AGC/TRACKING SIGNAL GENERATOR
LUMINANCE SIGNAL PROCESSING
AUTOMATIC IRIS CONTROL(AIC)
RED AND BLUE SEPARATION & CHROMA PROCESSING
AIC DAMPER
AIC DRIVE
AGC CONTROL
LOW LIGHT INDICATOR CONTROL
TRACKING-1
TRACKING-2
TRACKING-3
CP/PRE BL
PRE BL
Rc/Bc
PARA
V. EDGE
WHITE BALANCE DC
YH
YL
Y(EDGE)
(B-Y)SC
H. SAW
H. PARA
V. SAW
V. PARA
Hs
Vs
IC201
AMP
AGC
CLAMP
TRACKING-3 SIGNAL GENERATOR
OB CORRECTION
CP/PRE BL SEPARATION
TRACKING-1,2 SIGNAL GENERATOR
LOW LIGHT INDICATOR DRIVE
IC202
OB CLAMP
BUFFER
YL LOW LEVEL CLIP
YH GAMMA CORRECTION
YH LOW LEVEL CLIP
Y(EDGE) WHITE SUPPRESS
CP/PRE BL PARABOLA SEPARATION
+3.3V DC REGULATOR
GAMMA SELECTION
MODULATOR
AIC DRIVER
IC204
V. TRANSIENT SPURIOUS CORRECTION
Rc/Bc SEPARATION
R. SHADING TRACKING CORRECTION
B. SHADING TRACKING CORRECTION
PRE BL MIX
GAIN CONTROL
DETECTOR
Q202 90° PHASE SHIFTER
Q203 AMP/BUFFER
Q207~Q209 BUFFER
IC209(1/2) DIFFERENTIAL AMP
IC208(1/2) DIFFERENTIAL AMP
IC206
DIFF AMP
BR201(R2011~R2015)
BR203(R2031~R2035)
BR202(R2021~R2025)
BR207(R2071~R2074)
BR205(R2051~R2054)
BR208(R2081~R2085)
BR213(R2131~R2136)
BR209(R2091~R2096)
BR210(R2101~R2108)
BR211(R2111~R2116)
BR212(R2121~R2126)
BR214(R2141~R2143)
BR220(R2201~R2208)
TP201
TP203
TP204
TP207
TP208
TP209
TP210
TP211
TP213
TP214
VR201 INPUT GAIN
VR202 TRACKING-3 SET
VR203 Rc/Bc GAIN
VR204 YL PEDESTAL
VR205 Y GAIN
VR206 Rc/Bc SEPARATION-2
VC201 Rc/Bc SEPARATION-1
VR221 B GAIN
VR222 R GAIN
VR220 R GAIN PRESET
VR207 R PEDESTAL
VR217 OB CORRECTION -SAW
VR218 OB CORRECTION -PARA
VR219 OB OFFSET
VR214 R TRACKING-3
VR213 R TRACKING-1
VR212 R TRACKING-2
VR211 R-H SAW
VR210 R-H PARA
VR209 R-V SAW
VR208 R-V PARA
VR229 B TRACKING-3
VR228 B TRACKING-1
VR227 B TRACKING-2
VR226 B-H SAW
VR225 B-H PARA
VR224 B-V SAW
VR223 B-V PARA
VR230 V.EDGE BALANCE
+3.3V
+6V
+8.8V
+9V
YWV3000EZK2 PROCESS CIRCUIT BOARD

HEMATIC DIAGRAM OF PROCESS CIRCUIT BOARD (YWV3000EZK2)


AUTOMATIC IRIS CONTROL(AIC)
HORIZONTAL APERTURE SIGNAL GENERATOR
PAL SIGNAL PROCESSING
PLAYBACK SENSE
AIC DAMPER
AIC DRIVE
AGC CONTROL
BR202(R2021~R2025)
Y(EDGE) WHITE SUPPRESS
AIC DRIVER
IC209(½) AIC AMP
VR205 Y GAIN
VR215 AIC SET
IC203
BUFFER
H. APERTURE GENERATOR
AMP
GAIN CONTROL
BUFFER
LOW LEVEL CLIP
HIGH LEVEL CLIP
CLAMP
Hs/BL SEPARATION
BURST/SYNC MIX
PAL OUTPUT
Z204 3.58MHz TRAP
F201
Q201 +9V SWITCHING
Q10 AIC START DELAY
Q11, 12 PAL SIGNAL SWITCHING
Q13 PLAYBACK SENSOR
Q14 Vs AMP
IC210
BR204(R2041~R2043)
CN205
1 [NOT USED]
2 PAL OUT
3 GROUND
TO DEFLECTION CIRCUIT BOARD
H. APERTURE
TRACKING-3
CHROMA ENCODING
CHROMA
WHITE BALANCE DETECTION
Q206 WHITE BALANCE DETECTOR
Q204,Q205 CHROMA AMP
Q207~Q209 BUFFER
IC205
CLAMP
R. COLOR REPRODUCTION CORRECTION
B. COLOR REPRODUCTION CORRECTION
GAMMA SELECTION
MATRIX
WHITE SUPPRESS
R. GAMMA CORRECTION
YL GAMMA CORRECTION
B. GAMMA CORRECTION
R. DETECTION
YL DETECTION
B. DETECTION
Hs/BL SEPARATION
R−YL BALANCE MODULATOR
B−YL BALANCE MODULATOR
H. APERTURE SUPPRESS
CHROMA CLIP/ SUPPRESS
BR214(R2141~R2143)
BR215(R2151~R2153)
BR216(R2161~R2166)
VR216 CHROMA GAIN
BR223(R2231~R2234)
VR207 R PEDESTAL
V. EDGE
WHITE BALANCE DC
(R−Y)SC
(B−Y)SC
CN203
1 Vs IN
2 Hs IN
3 PRE BL IN
4 BL IN
5 SYNC IN
6 +7V OUT
7 D.HD IN
8 B.F.P. IN
9 (R−Y)SC IN
10 (B−Y)SC IN
TO SYNC CIRCUIT BOARD
VERTICAL EDGE SIGNAL GENERATOR
IC206
DIFF AMP
DIFF AMP
DIFF AMP
IC208(1/2) DIFFERENTIAL AMP
DL202
T201
Q215, Q216 DETECTOR
Q210 MIX AMP
Q211~Q214 V. EDGE OUT
BR219(R2191~R2196)
BR217(R2171~R2173)
BR221(R2211~R2215)
BR220(R2201~R2208)
VR230 V.EDGE BALANCE
Y(EDGE)
TP213
TP214
PULSE DISTRIBUTION
IC212
Q20 90°PHASE SHIFTER
Q21 BUFFER
BR222(R2221~R2224)
IC207
IC211
Q15,Q16 BUFFER
Q17 BL AMP
Q18 BUFFER
Q19 +5V DC REGULATOR
VC202 BURST PHASE
5
6
7
8
9
10

CONDUCTOR VIEW OF PROCESS CIRCUIT BOARD (YWV3000EZK2)

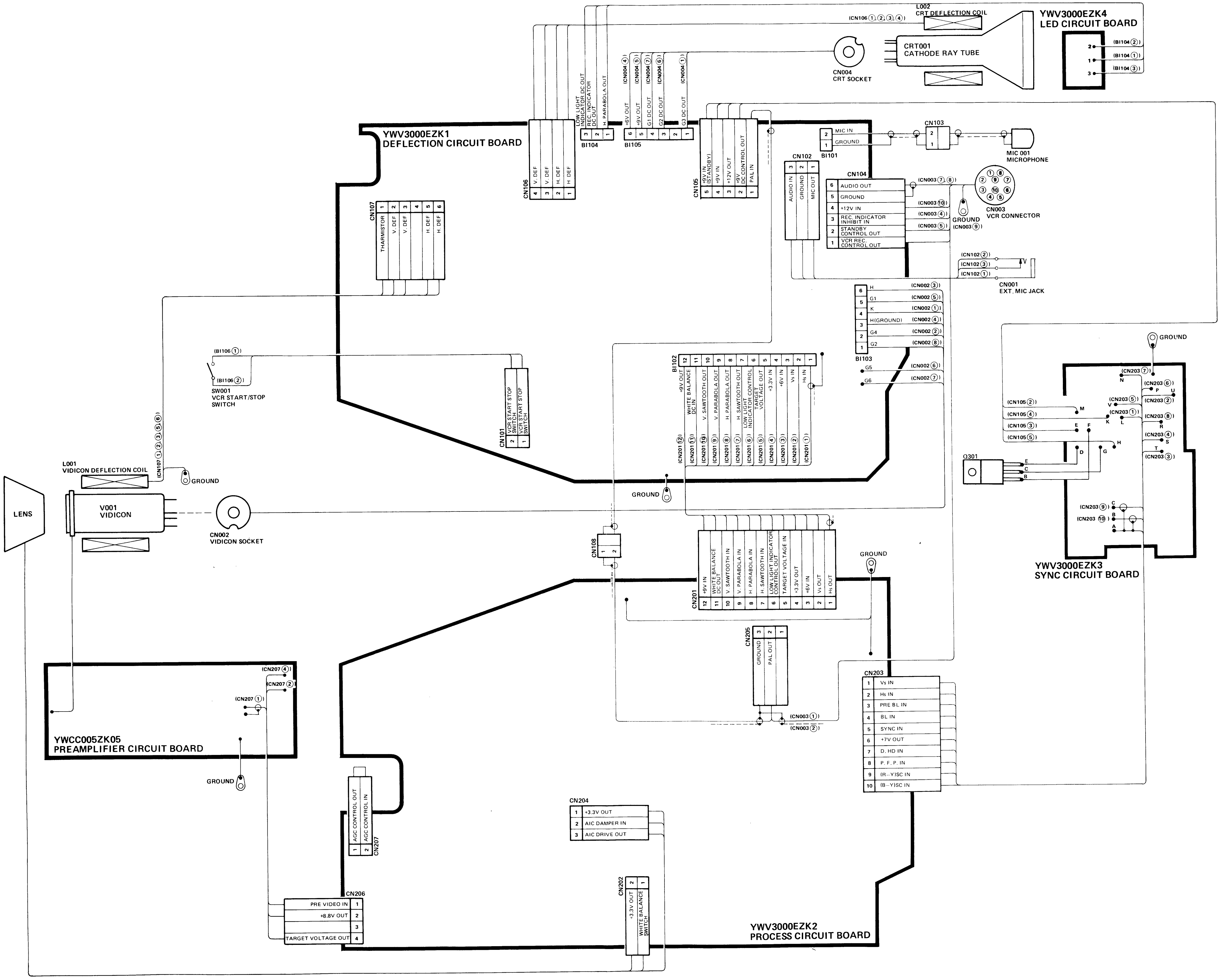

+3.3V OUT
WHITE BALANCE SWITCH
TO AIC LENS
GROUND
PAL OUT
[NOT USED]
TO DEFLECTION CIRCUIT BOARD
CN206
TARGET VOLTAGE OUT
+8.8V OUT
PRE VIDEO IN
TO PREAMPLIFIER CIRCUIT BOARD
CN202
CN205
TO AIC LENS
+3.3V OUT
AIC DAMPER IN
AIC DRIVE OUT
CN204
CN207
VR201 INPUT GAIN
VR222 R GAIN
VR221 B GAIN
VR202 TRACKING-3 SET
VR216 CHROMA GAIN
VR230 V. EDGE BALANCE
VR205 Y GAIN
IC201
IC202
IC203
IC204
IC205
IC206
IC207
IC208
IC209
IC210
IC211
IC212
VR203 Rc/Bc GAIN
VR204 YL PEDESTAL
VR215 AIC SET
VR217 OB CORRECTION-SAW
VR219 OB OFFSET
VR218 OB CORRECTION-PARA
TP201
TP202
TP203
TP204
TP207
TP208
TP209
TP210
TP211
TP212
TP213
TP214
TP216
TP217
VC202 BURST PHASE
CN203
(B−Y)SC IN
(R−Y)SC IN
B.F.P. IN
D. HD IN
+7V OUT
SYNC IN
BL IN
PRE BL IN
Hs IN
Vs IN
TO SYNC CIRCUIT BOARD
VR214 R-TRACKING-3
VR212 R-TRACKING-2
VR229 B-TRACKING-3
VR227 B-TRACKING-2
VR213 R-TRACKING-1
VR228 B-TRACKING-1
VR211 R-H. SAWTOOTH
VR226 B-H. SAWTOOTH
VR210 R-H. PARABOLA
VR225 B-H. PARABOLA
VR208 R-V. PARABOLA
VR223 B-V. PARABOLA
VR209 R-V. SAWTOOTH
VR224 B-V. SAWTOOTH
VR220 R GAIN PRESET
VR207 R PEDESTAL
VR206 Rc/Bc SEPARATION-2
GROUND
VC201 Rc/Bc SEPARATION-1
CN201
+9V IN
WHITE BALANCE DC OUT
V. SAWTOOTH IN
V. PARABOLA IN
H. PARABOLA IN
H. SAWTOOTH IN
LOW LIGHT INDICATOR DC OUT
TARGET VOLTAGE IN
+3.3V OUT
+6V IN
Vs OUT
Hs OUT
TO DEFLECTION CIRCUIT BOARD
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9

IC201	AN6015	E2, E3
IC202	AN6012	E3, E4
IC203	AN6022	D6, E6
IC204	AN6031	C5, D5
IC205	AN6045	D5, E5
IC206	AN614	F6
IC207	HD74LS02A	E7
IC208	YNJM4556D	D2
IC209	YHSNJM4558D	D3
IC210	EHMK220L20S	C7, D7
IC211	EHMK727A98S	C7, D7
IC212	EHMK111A97	E7

Q201	2SB793A-RST	D6
Q202	2SC2377-CD	C4
Q203	2SD636-QRS	C5
Q204	2SD636-QRS	F5
Q205	2SC2377-CD	F5
Q206	2SC2377-CD	F5
Q207	2SD636-QRS	E5
Q208	2SD636-QRS	E5
Q209	2SD636-QRS	E5
Q210	2SD636-QRS	F6
Q211	2SC2377-CD	F5
Q212	2SD636-QRS	F5
Q213	2SC2377-CD	F5
Q214	2SA838-CD	F5
Q215	2SC2377-CD	F7
Q216	2SC2377-CD	F7

D201	MA165	D4
D202	MA26W	D7
D203	MA165	F5
D204	MA165	E5
D206	MA165	E4

WIRING DIAGRAM


YWV3000EZK1
DEFLECTION CIRCUIT BOARD
YWV3000EZK2
PROCESS CIRCUIT BOARD
YWV3000EZK3
SYNC CIRCUIT BOARD
YWV3000EZK4
LED CIRCUIT BOARD
YWCC005ZK05
PREAMPLIFIER CIRCUIT BOARD
L002
CRT DEFLECTION COIL
CRT001
CATHODE RAY TUBE
CN004
CRT SOCKET
L001
VIDICON DEFLECTION COIL
V001
VIDICON
CN002
VIDICON SOCKET
LENS
SW001
VCR START/STOP SWITCH
MIC 001
MICROPHONE
CN003
VCR CONNECTOR
CN001
EXT. MIC JACK
Q301
GROUND
CN106
CN107
CN105
CN104
CN102
CN103
CN101
CN108
BI101
BI102
BI103
BI104
BI105
CN201
CN202
CN203
CN204
CN205
CN206
CN207
THARMISTOR
V. DEF
H. DEF
LOW LIGHT INDICATOR DC OUT
REC. INDICATOR DC OUT
H. PARABOLA OUT
+6V OUT
+9V OUT
G1 DC OUT
G2 DC OUT
G3 DC OUT
+9V IN (STANDBY)
+9V IN
+12V OUT
+9V DC CONTROL OUT
PAL IN
AUDIO IN
MIC OUT
MIC IN
AUDIO OUT
+12V IN
REC. INDICATOR INHIBIT IN
STANDBY CONTROL OUT
VCR REC. CONTROL OUT
VCR START STOP SWITCH
+9V OUT
WHITE BALANCE DC IN
V. SAWTOOTH OUT
V. PARABOLA OUT
H. PARABOLA OUT
H. SAWTOOTH OUT
LOW LIGHT INDICATOR CONTROL
TARGET VOLTAGE OUT
+3.3V IN
+6V IN
Vs IN
Hs IN
H
G1
K
H(GROUND)
G4
G2
G5
G6
+9V IN
WHITE BALANCE DC OUT
V. SAWTOOTH IN
V. PARABOLA IN
H. PARABOLA IN
H. SAWTOOTH IN
LOW LIGHT INDICATOR CONTROL OUT
TARGET VOLTAGE IN
+3.3V OUT
+6V OUT
Vs OUT
Hs OUT
PAL OUT
Vs IN
Hs IN
PRE BL IN
BL IN
SYNC IN
+7V OUT
D. HD IN
P. F. P. IN
(R−Y)SC IN
(B−Y)SC IN
+3.3V OUT
AIC DAMPER IN
AIC DRIVE OUT
AGC CONTROL OUT
AGC CONTROL IN
PRE VIDEO IN
+8.8V OUT
TARGET VOLTAGE OUT
WHITE BALANCE SWITCH

REPLACEMENT PARTS LIST

Vol. 4

Important Notice

1. Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
2. Components identified by * mark are new parts used from this model.
3. This replacement parts list include only changed portion.

ORIGINAL PARTS			NEW PARTS		
SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
MISCELLANEOUS					
CN101-PM	EMCL0207D52V	Connecting Wire Ass'y for CN101 and BI106	CN101-PF	EMCM0212B52	2-Pin Plug Female
CN102-PF	EMCM0312C52V	3-Pin Plug Female	CN102-PF	EMCM0312C55V	3-Pin Plug Female
M053	* YWFAC17XAM4	Shield Plate A for Vidicon Socket	M053	* YWFAC17XAM4A	Shield Plate A for Vidicon Socket
YWV3000EZK1A DEFLECTION CIRCUIT BOARD					
PCB001	*YWV3000EZK1	Printed Circuit Board Ass'y	PCB001	*YWV3000EZK1A	Printed Circuit Board Ass'y
Q111	2SD959-PQ	Transistor	Q111	2SD975	Transistor
Q119	2SD866-PQ	Transistor	Q119	2SD975	Transistor
D110	MA165	Diode	—	—	—
—	—	—	D109	MA165	Diode
—	—	—	C177	ECEA1CK100B	Electrolytic 10μF 16V
L103	ELQ333D008J	Inductor 33mH	L103	YWEF7303MH	Inductor 33mH
—	—	—	CN101-JM	EMCS0252M	2-Pin Jack Male
CN104-JM	EMCS0852M	8-Pin Jack Male	CN104-JM	EMCS0652M	6-Pin Jack Male
CN105-JM	EMCS0452M	4-Pin Jack Male	CN105-JM	EMCS0552M	5-Pin Jack Male
BI102	EMCM1210B60V	Connecting Wire Ass'y for BI102 and CN201	BI102	EMCM1310B63V	Connecting Wire Ass'y for BI102 and CN201
BI103	EMCL0613D62W	6-Pin Connecting Wire Ass'y for BI103 and CN002	BI103	EMCL0613063W	6-Pin Connecting Wire Ass'y for BI103 and CN002
BI106	EMCL0207D52V	Connecting Wire Ass'y for for BI106 and CN101	—	—	—
BI107	EMCM0315B52V	Connecting Wire Ass'y for BI107 and CN205	—	—	—
YWV3000EZK2 PROCESS CIRCUIT BOARD					
—	—	—	F201	YWICP-N10	Fuse 0.4A
YWV3000EZK3A SYNC CIRCUIT BOARD					
PCB003	*YWV3000EZK3	Printed Circuit Board Ass'y	PCB003	*YWV3000EZK3A	Printed Circuit Board Ass'y
CN105-PF	EMCM0418D65	4-Pin Plug Female	CN105-PF	EMCM0518B54X	5-Pin Plug Female
YWCC500XK05 HANDLE GRIP ASSEMBLY					
M061 ⚠	*YWCC500KR05	Handle Grip Cover A	M061 ⚠	*YWCC500KR05A	Handle Grip Cover A
M062 ⚠	*YWCC500KR06	Handle Grip Cover B	M062 ⚠	*YWCC500KR06A	Handle Grip Cover B
—	—	—	M068	*YWCC500KR07	Grip Cap for Handle Grip Cover B